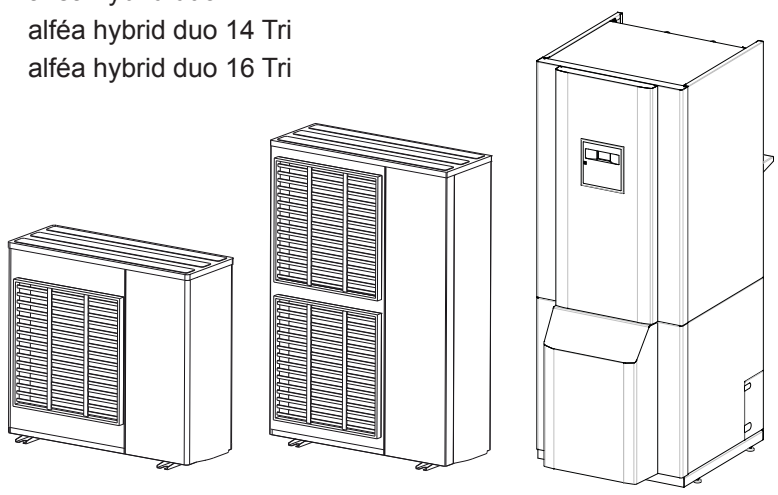
alféa hybrid duo

Water/air heat pump with integrated fuel oil burner, single phase or three phase split, 2 services

Outdoor unit		Hydraulic module	
☐	AOYA 30 LBTL	☒	024101
☐	AOYA 45 LBTL		
☐	AOY 54 LJBYL		
☐	WOYK112LCT		
☐	WOYK140LCT		
☐	WOYK160LCT		

alféa hybrid duo 10
alféa hybrid duo 13
alféa hybrid duo 16
alféa hybrid duo 11 Tri
alféa hybrid duo 14 Tri
alféa hybrid duo 16 Tri



Document n° 1440-13 ~ 20/12/2012

FR ES PT IT **EN**

Installation and commissioning instructions

for professionals

To be kept by the user for future reference

atlantic

atlantic-comfort.com

The specifications of this equipment may be modified without prior instructions
Non-contractual document.

Thank you for buying this product.
ISO 9001 certified, the industrial heating company, part of the Atlantic group, guarantees the quality of its appliances and undertakes to satisfy the requirements of its customers.
The experience and expertise of the company is associated to leading edge technologies in the design and manufacture of its range of heating appliances.
This document is designed to help you install and use your appliance, and optimise its performances, for your comfort and safety.

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☞ **The following are required for the installation of this appliance:**
- qualified personnel, certified as capable of handling refrigerating fluids (in compliance with article R543.106 of the environmental code),
- a heating engineer.

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1 Presentation of the equipment

1.1 Packaging

• 1 box: Outdoor unit.

• 1 box: Hydraulic module with burner and outdoor temperature sensor.

Pairing table

Heat pump		Outdoor unit		Hydraulic module hybrid duo	
Model	Export code	Ref.	Code	Ref.	Code
alféa hybrid duo 10 single phase	522637	AOYA30LBTL	700730	MH-HD	024101
alféa hybrid duo 13 single phase	522638	AOYA45LATL	700745		
		AOYA45LBTL	700845		
alféa hybrid duo 16 single phase	522639	AOY54LJBYL	700054		
alféa hybrid duo 11 three phase	522514	WOYK112LCT	700118		
alféa hybrid duo 14 three phase	522515	WOYK140LCT	700143		
alféa hybrid duo 16 three phase	522516	WOYK160LCT	700163		

1.2 Optional equipment

• **2nd circuit** kit (Ref. 073953).
- to connect 2 heating circuits.

• **ambient sensor** (Ref. 073951).
- to correct the ambient temperature.

• **Central ambient unit T75** (Ref. 073954) or **radio central ambient unit T78** (Ref. 074061).
- to correct the ambient temperature and programme the heat pump.

• **Anti-vibration pads** (Ref. 523574).

• **White PVC floor support** (Ref. 809532).

• **Swimming pool duo kit** (Ref. 074064).

• **High flow rate circulation pump kit** (Ref. 073959).
- to install 1 under-floor heating circuit with a heat pump model 13 and 16.

1.3 Scope

This heat pump permits:
- heating in winter,
- production of domestic hot water,
- control of two heating circuits*,
- heating of the swimming pool*.

*: These options require the use of additional kits (see § "Optional equipment").

1.4 Definitions

- Split: the heat pump is formed by two elements (an outdoor unit to be installed outdoors and a hydraulic module to be installed indoors).
- Air/water: the outdoor air is the energy source. This energy is transmitted to the heating water by the heat pump.
- Inverter: the speed of the fan and the compressor are modulated to suit the heat requirements. This technology economises energy and permits operation with single phase power supply, regardless of the power rating of the heat pump, by avoiding high current demands when started.
- COP (coefficient of performance): this is the ratio between the energy transmitted to the heating circuit and the electrical energy consumed.
- Hybrid: the hydraulic module operates with dual energy (heat pump air/water and built in fuel boiler).

1.5 General characteristics

Denomination of model	alféa hybrid duo	10	13	16	11 tri	14 tri.	16 tri
Nominal heating performances (T° outdoor/T° start)							
Calorific power							
+7°C/+35°C - under-floor heating	kW	9,92	13,30	14,86	10,60	13,25	14,89
-7°C/+35°C - under-floor heating	kW	7,21	10,25	10,51	9,75	13,00	13,50
+7°C/+45°C - LT radiator	kW	6,20	7,73	8.98	10.10	12.60	13.00
-7°C/+45°C - LT radiators	kW	5,90	6,45	8,04	8,66	12,50	13,00

Denomination of model		alféa hybrid duo	10	13	16	11 tri	14 tri.	16 tri
Absorbed power								
+7°C/+35°C - under-floor heating	kW		2,70	3,50	4,34	2,68	3,20	3,70
-7°C/+35°C - under-floor heating	kW		3,40	4,10	4,59	3,68	5,18	5,40
+7°C/+45°C - LT radiators	kW		1,88	2,40	3,11	3,01	3,81	4,00
-7°C/+45°C - LT radiators	kW		2,62	2,93	4,39	4,04	6,00	6,37
Coefficient of performance (COP) (+7°C/+ 35°C)			3,67	3,80	3,42	4,95	4,14	4,02
Useful thermal power for boiler back up	kW		25					
Electrical characteristics								
Voltage (50 HZ)	V		230	230	230	400	400	400
Maximum current of the appliance	A		17	20	26	10.5	10.5	10.5
Nominal current	A		11.7	16.7	20.6	3.6	4.8	5.5
Actual power absorbed								
- by the fan	W		103	2x103	2x103	2x104	2x104	2x104
- by the circulation pump	W		151					
Maximum power absorbed								
- by the outdoor unit	W		3910	4600	5980	5865	6555	7245
Burner (Stella 4000 unit), combustion chamber, chimney								
Fuel flow rate	kg/h		2.3					
Nominal calorific flow rate	kW		28.7					
Jet	Delavan		0.6 gph 60°					
Max. viscosity at 20°C	°E		1.5					
Pump	Suntec		AL 35					
Factory set pressure	bar		15					
Diameter (combustion chamber)	mm		270					
Length (combustion chamber)	mm		400					
Volume (combustion chamber)	dm^3		22.9					
Volume on smoke side	dm^3		31.1					
Number of turbulators in the exchanger	-		7					
Temperature of the smoke	°C		190					
Mass flow rate of the smoke	kg/h		44.4					
Boiler pressure	Pa		16					
Optimum low pressure in the chimney	Pa		15					
Hydraulic circuit								
Maximum operating pressure	bar		3					
Flow rate of the hydraulic circuit at 4°C<Δt<8°C (nominal conditions)								
- minimum	l/h		1000	1380	1670	1200	1500	1700
- maximum	l/h		2100	2700	3300	2400	3000	3400
Domestic hot water tank								
Capacity of domestic hot water tank	litre		125					
Maximum operating pressure	bar		7					
Specific flow rate (in boiler mode only)	l/mn		19					
Miscellaneous								
Weight of the outdoor unit	kg		64	98	105	99	99	99
Weight of the hydraulic module (empty/with water)	kg		215/482					
Capacity of boiler	litre		142					
Expansion tank	litre		18					
Noise level at 1 m [1] (hydr. mod. in thermodynamic mode)	dB		35.5					
Acoustic power in compliance with EN 12102 [2] (hydr. mod.)	dB		43.3					
Noise level at 5 m [1] (outdoor unit)	dB		41	40	44	39	41	42
Acoustic power in compliance with EN 12102 [2] (outdoor unit)	dB		68	67	71	66	68	69
Min./max. outdoor temp. (thermodynamic mode)	°C		-15/+24	-15/+24	-15/+24	-25/+35	-25/+35	-25/+35
Max. water temperature for start of heating	°C		80					
Max. water temperature thermodynamic mode	°C		52	52	52	60	60	60
Refrigerating circuit								
Diameters of the gas pipes	inches		5/8					
Diameters of the liquid pipes	inches		3/8					
Factory charge of refrigerating fluid R410A [3]	g		2100	3350	3400	2500	2500	2500
Max. operating pressure	bar		41,5					
Min. length of pipes			0	0	0	5	5	5
Max. length of pipes [4]	m		15					
Max. length of pipes [5]	m		25	25	25	20	20	20
Max. difference in height [5]	m		25	25	25	20	20	20

[1] Sound pressure level at (x) m from the appliance, 1.5 m from the ground, free field, directivity 2.

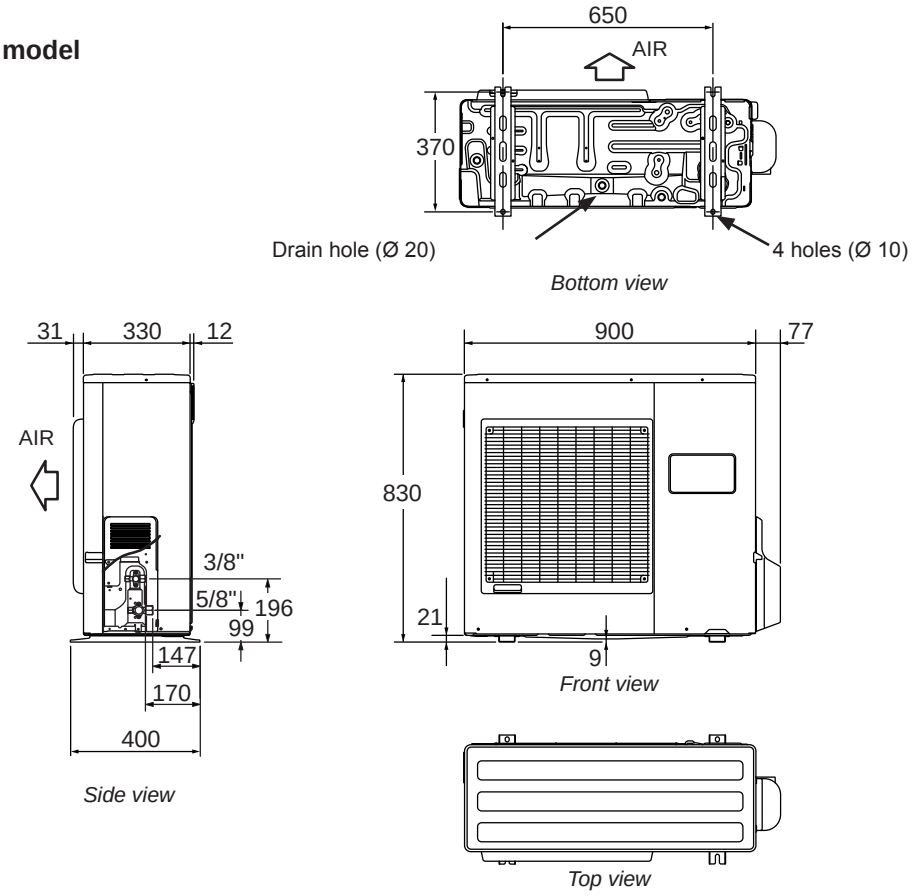
[2] The acoustic power is a measurement made in the laboratory of the power of the noise emitted but contrary to the noise level, it does not correspond to the measurement of what is felt.

[3] Refrigerating fluid R410A in compliance with standard NF EN 378.1.

[4] Factory charge of refrigerating fluid R410A.

[5] Taking into account the potential additional charge of refrigerating fluid R410A (see figure 25, page 22).

Outdoor unit, hybrid duo 10 model



Outdoor unit, hybrid duo 13 model, hybrid duo 16 model

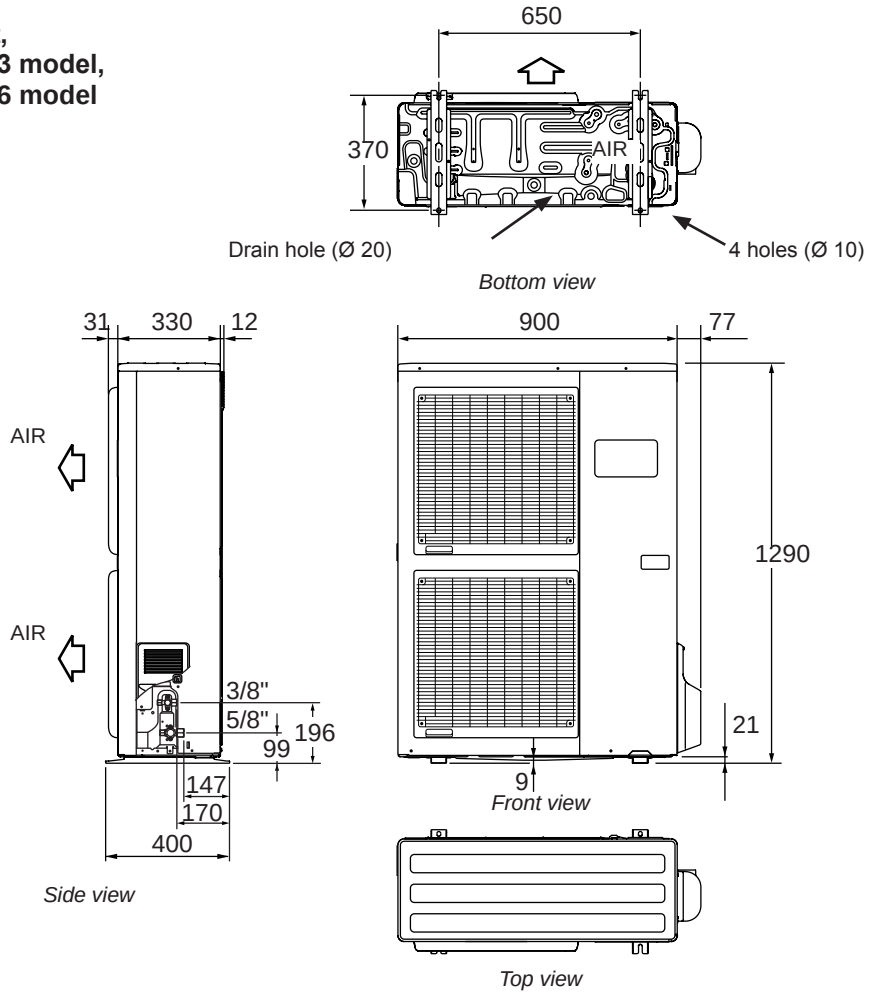


figure 1 - Dimensions in mm

Outdoor unit,
model hybrid duo 11 tri,
model hybrid duo 14 tri,
model hybrid duo 16 tri

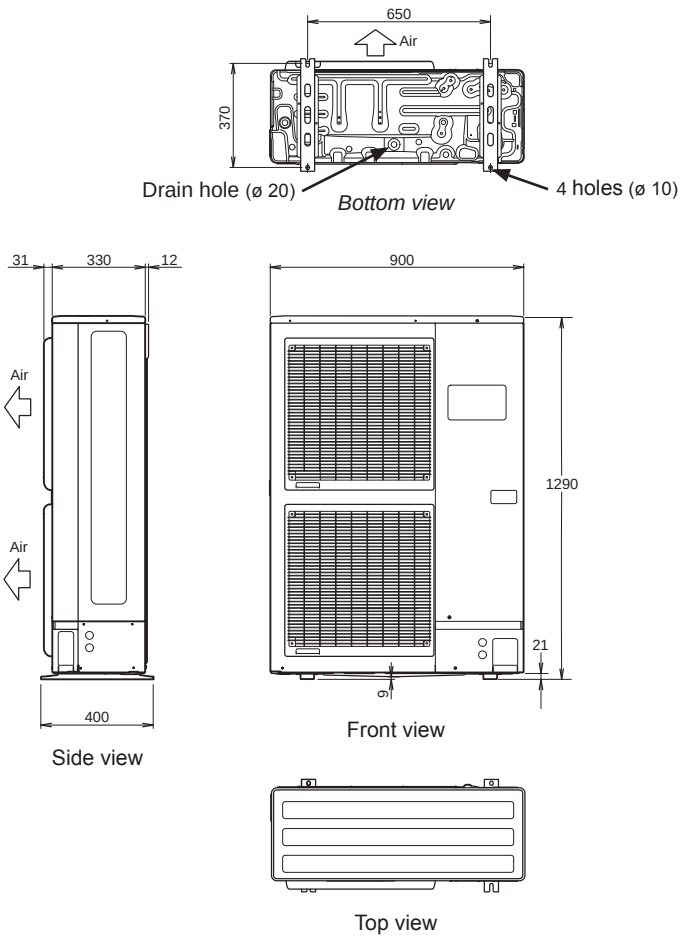


figure 2 - Dimensions in mm

Hydraulic unit

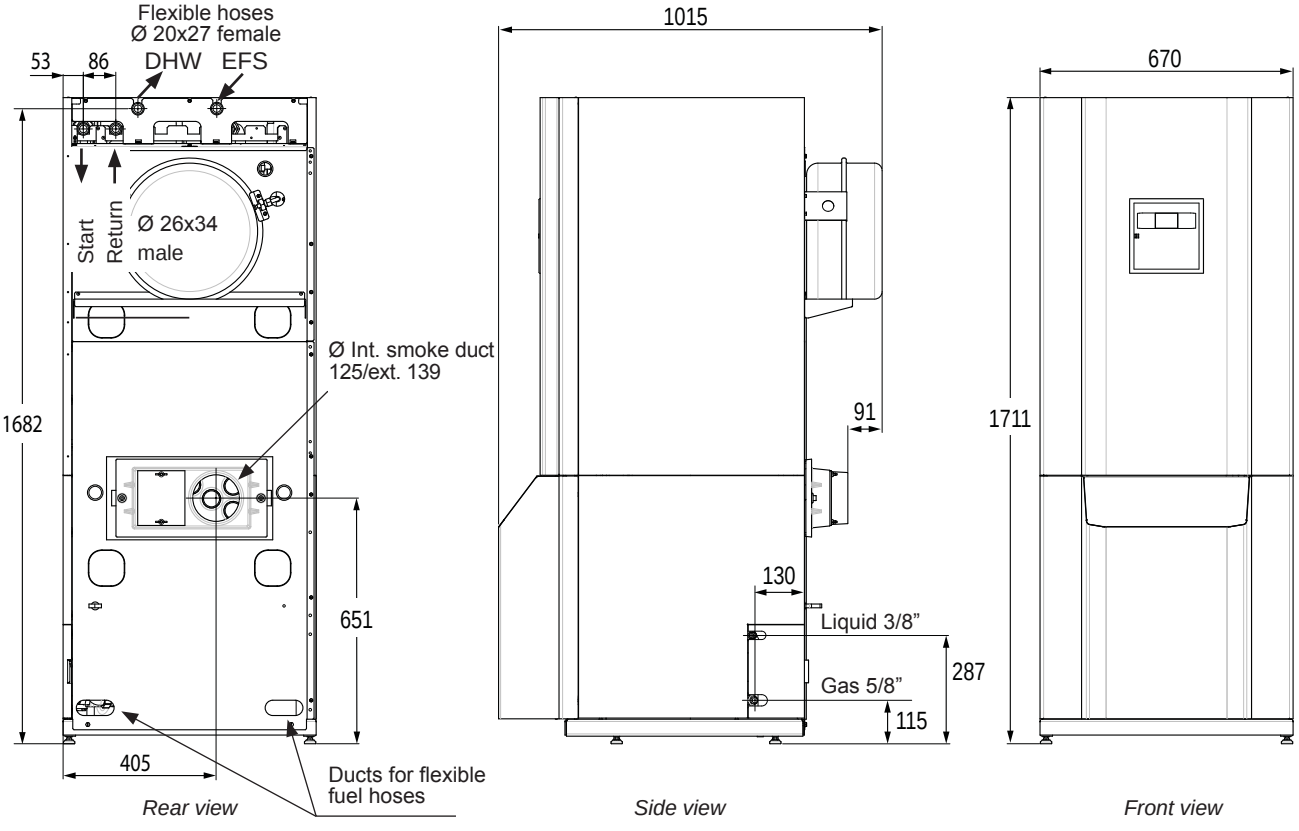


figure 3 - Dimensions in mm

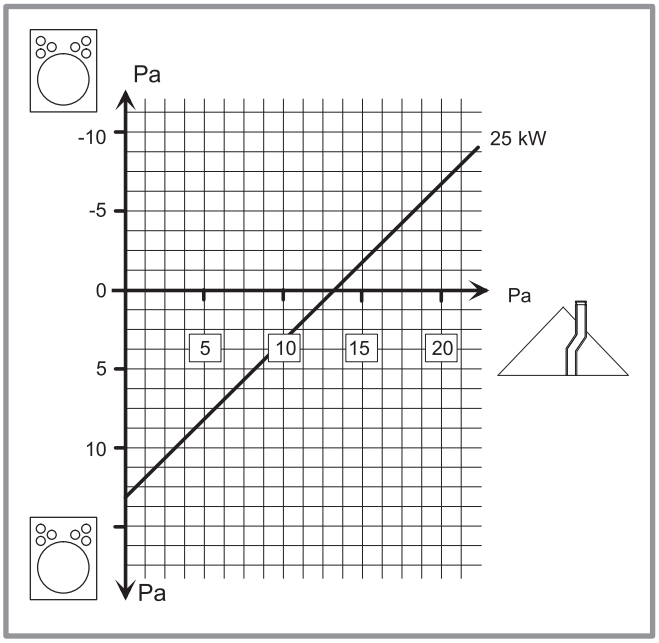


figure 7 - Pressure drop in the combustion circuit

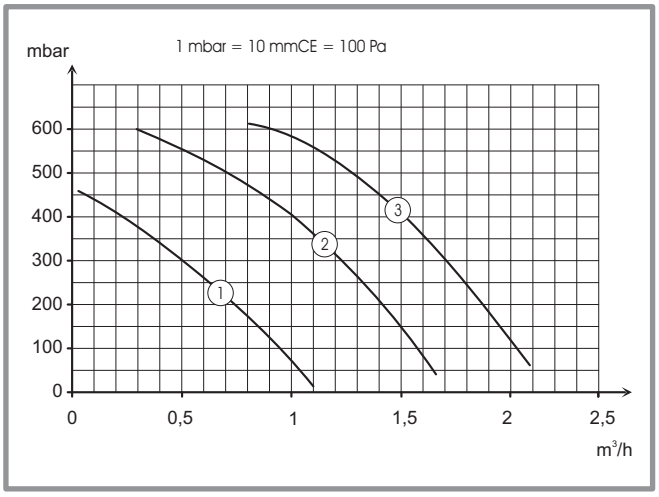


figure 4 - Hydraulic pressures and flow rates available

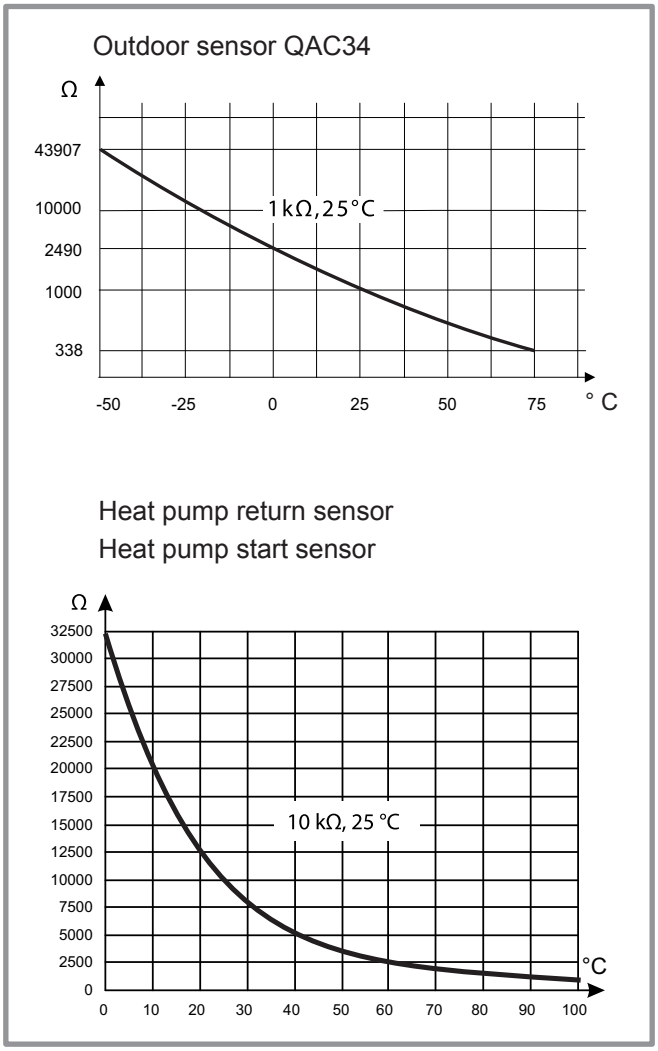


figure 5 - Ohmic value of the sensors (hydraulic module)

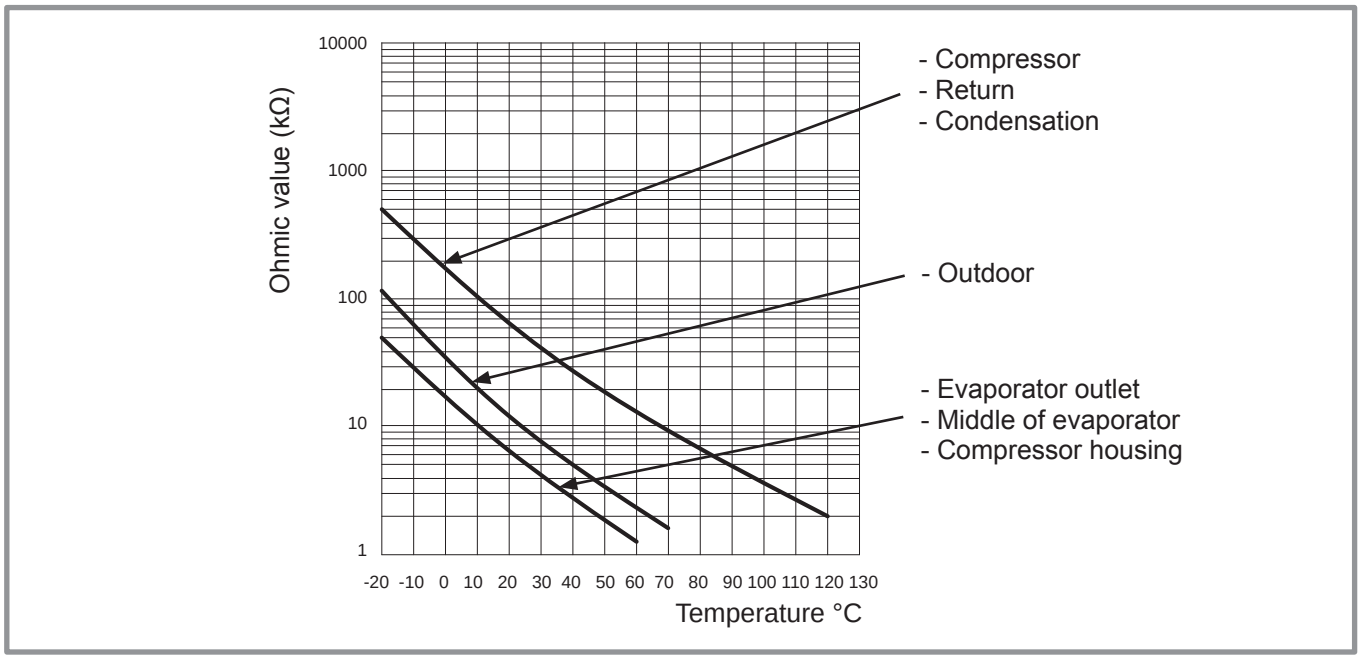
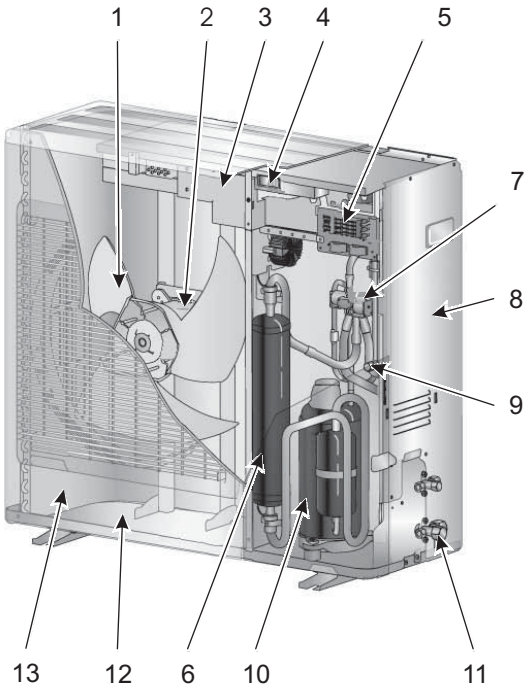


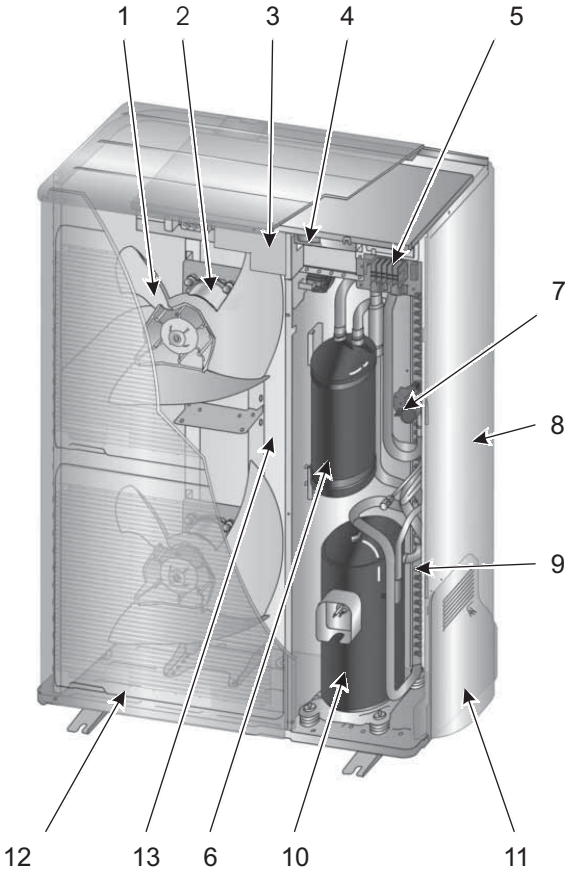
figure 6 - Ohmic value of the sensors(outdoor unit)

1.6 Description

☞ **model hybrid duo 10**



☞ **model hybrid duo 13, hybrid duo 16**



Legend

1 - High performance impeller and low noise level
2 - Electrical motor with variable "inverter" operation
3 - "Inverter" command module
4 - Control LEDs and buttons.
5 - Connection terminal blocks (power supply and inter-connection)
6 - Storage bottle for refrigerating fluid
7 - Cycle inversion valve
8 - Panels treated against corrosion
9 - Electronic pressure regulator
10 - "Inverter" compressor acoustically and thermally insulated
11 - Refrigerating connection taps (flare connector) with protective cover
12 - Condensate basin with drain hole
13 - High performance exchange surface evaporator; anti-corrosion treated hydrophilic aluminium fins and grooved copper tubes.
14 - Solenoid valve for injection of liquid.
15 - Electronic pressure regulator for injection of liquid.
16 - "Inverter" compressor acoustically and thermally insulated with liquid injection port.

☞ **model hybrid duo 11 tri, hybrid duo 14 tri, hybrid duo 16 tri**

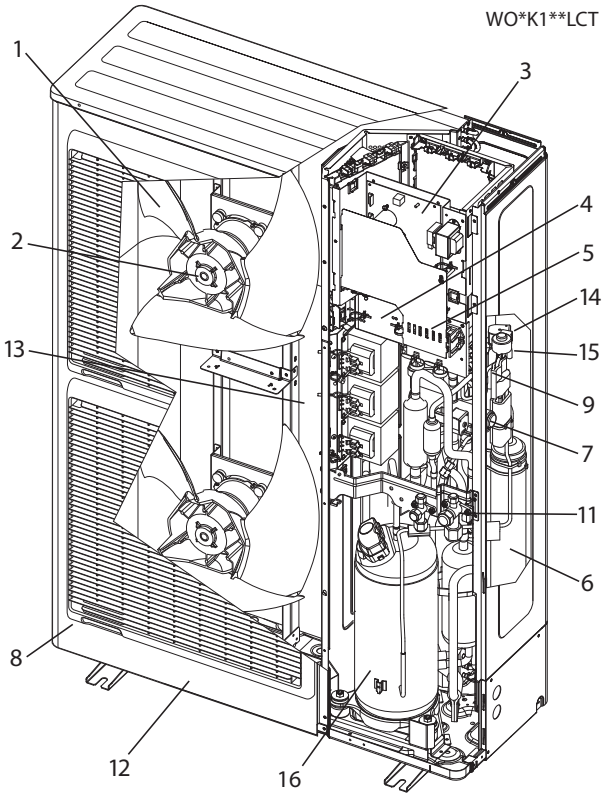
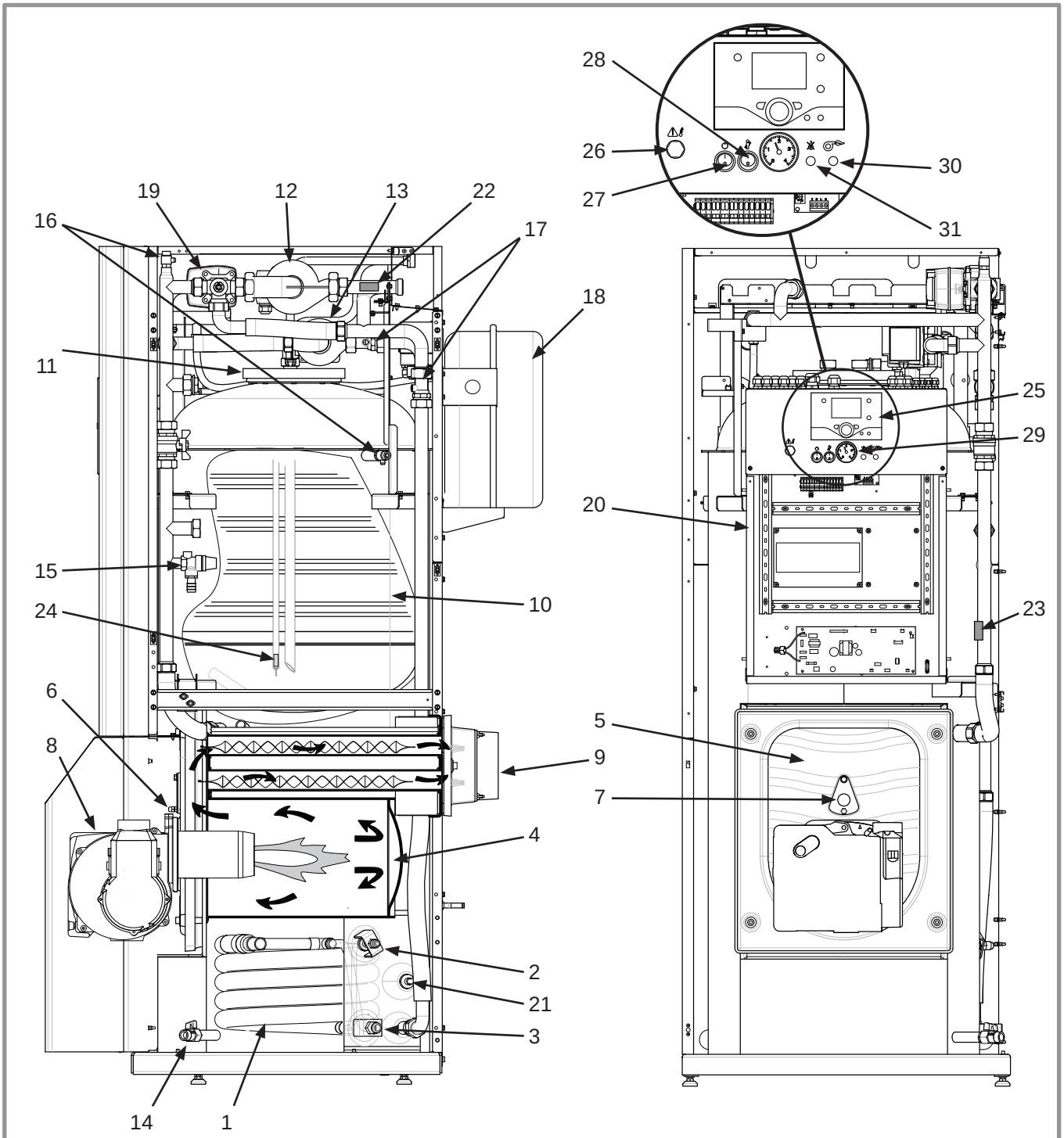


figure 8 - Outdoor unit parts



Legend

1. Condenser
2. "Liquid" refrigerating connector
3. "gas" refrigerating connector
4. Combustion chamber
5. Chamber door
6. Chamber pressure socket
7. Flame viewer
8. Burner
9. Smoke evacuation (chimney)
10. Domestic hot water tank
11. Inspection trap of the domestic hot water tank
12. heating circulation pump
13. domestic hot water circulation pump
14. Drain valve
15. Safety valve
16. Manual drain tap
17. Non-return valve
18. Expansion vessel
19. heating circuit1 mixing valve
20. Electrical housing

Sensors

21. Condensation sensor
22. heating circuit1 start sensor
23. Heater start sensor
24. Domestic hot water sensor

Control panel

25. User interface
26. Reset button (overheating safety device)
27. Start/Stop switch
28. "Sweeping" button
29. Pressure gauge
30. Burner on LED (green)
31. Burner safety LED (red)

figure 9 - Hydraulic unit parts

1.7 Operating principle

The heat pump transmits the energy in the outdoor air to the home to be heated.

The heat pump is formed of four main elements inside which a refrigerating fluid circulates (R410A).

- In the evaporator (ref. **13**, figure 8, page 9): The calories are taken from the outdoor air and transmitted to the refrigerating fluid. As its boiling point is low, it changes from the liquid state to the vapour state, even when the weather is cold.
- In the compressor (rep. **10** or **16**, figure 8, page 9): The vaporised refrigerating fluid is pressurised and thus carries more calories.
- In the condenser (ref. **1**, figure 9, page 10): The energy of the refrigerating fluid is transmitted to the heating circuit. The refrigerating fluid returns to its liquid state.
- In the pressure regulator (ref. **9** or **15**, figure 8, page 9): Then liquefied refrigerating fluid is reduced to low pressure and its initial temperature and pressure.

The heat pump has a regulator that controls the indoor temperature based on the measurement of the outdoor temperature, regulation by water logic. The ambient sensor (optional) provides a corrective action to the water logic.

The hydraulic module is equipped with a burner with All or Nothing operation, controlled by the regulator:

- to provide additional heating during the colder periods,
- to provide support for the domestic requirements (DHW) or
- to provide a relay during "Peak rate" days (load shedding or EJP function, see page 30).

Priority is given to the operation of the heat pump. When the heat pump is not sufficient for the heating, the burner automatically takes over.

• Regulation functions

- The initial temperature of the heating circuit is controlled by water logic.
- In function of an initial heating temperature, the power of the outdoor unit is modulated via the "inverter" compressor.
- Management of the supplementary heating.
- The daily timer programme allows comfort or reduced ambient temperature periods.
- Switching between summer/winter operation is automatic.
- Domestic hot water: Timer heating programme, management of operation of the DHW circulation pump.
- Ambient sensor*: The ambient sensor provides a corrective action to the water logic.
- Management of a 2nd heating circuit*.
- Management of the heating of the swimming pool*.

*When the heat pump is equipped with options and associated kits.

• Protection functions

- Anti-legionella cycle for the domestic hot water.
- A pressure switch monitors the hydraulic pressure. If the pressure is below 0.5 bar, an error message is displayed (369) and the heat pump is stopped.

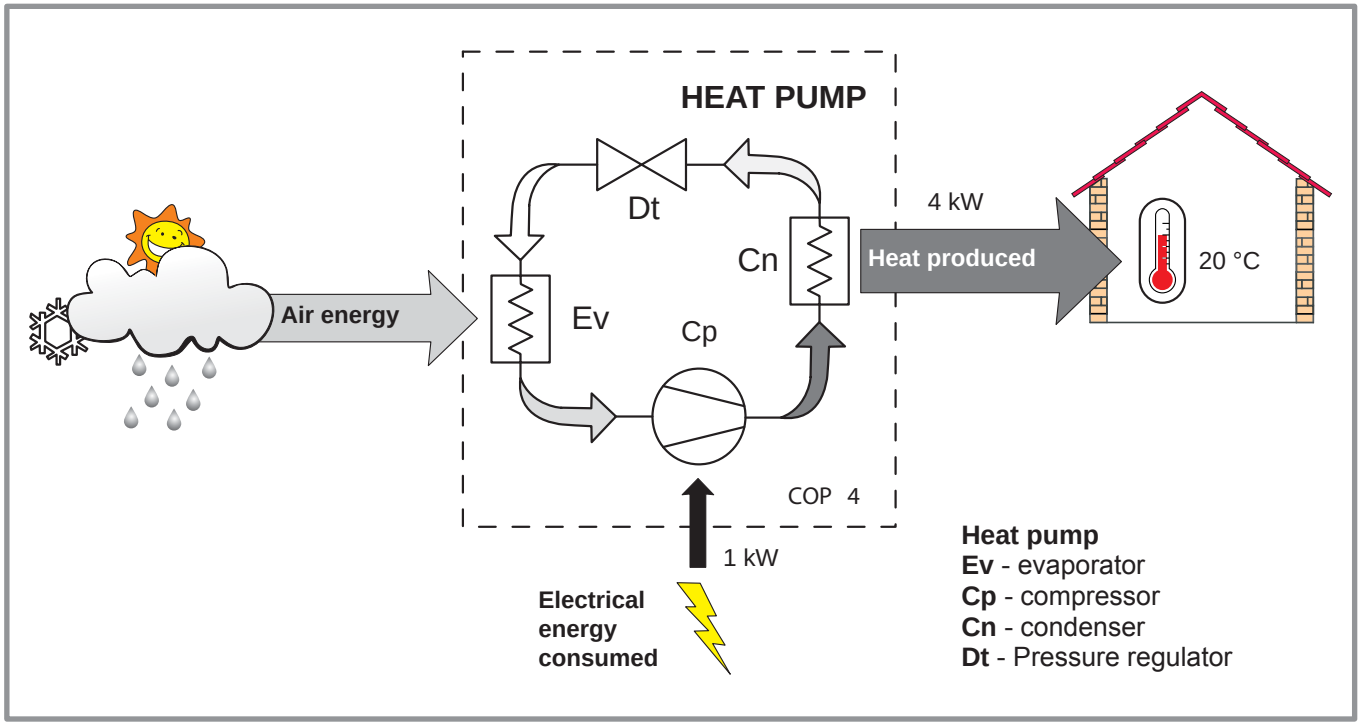


figure 10 - Operating principle of a heat pump

• Operating principle of the domestic hot water (DHW)

Two domestic hot water (DHW) temperatures can be set: comfort temperature (line 1610 at 65°C) and reduced temperature (line 1612 at 40°C).

The default DHW programme (line 560, 561, 562, 563 and 564) is set for a comfort temperature from 0h00 to 5h00 and from 15h00 to 18h00 and a reduced temperature for the rest of the day.

The reduced temperature value may be useful to avoid restarting the DHW too many times and for too long through the day.

The production of domestic hot water (DHW) is started when the temperature in the tank is 7°C below (setting of line 5024) the reference value temperature.

The domestic hot water (DHW) is produced by the heat pump then completed if required by the burner. To ensure there is an DHW value higher than 45°C, the burner must be operated.

Depending on the setting of the parameter (1620), the comfort temperature may be reached either

- 24 h/day,
- in line with the timer programme of the heating circuit,
- in line with the DHW timer programme,
- during the off peak periods,
- during the off peak periods and in line with the DHW timer programme.

The DHW production has priority over the heating, nevertheless the production of DHW is managed by cycles that regulate the time allocated to heating and to the production of DHW in case of simultaneous demands.

A switching function of "reduced" to "comfort" is available on the front panel of the user interface (see ref. **1**, figure 50, page 36).

Anti-legionella cycles may be programmed (lines 1640 to 1647).

• Fan coil units with integrated regulation

Do not use an ambient sensor in the zone concerned.

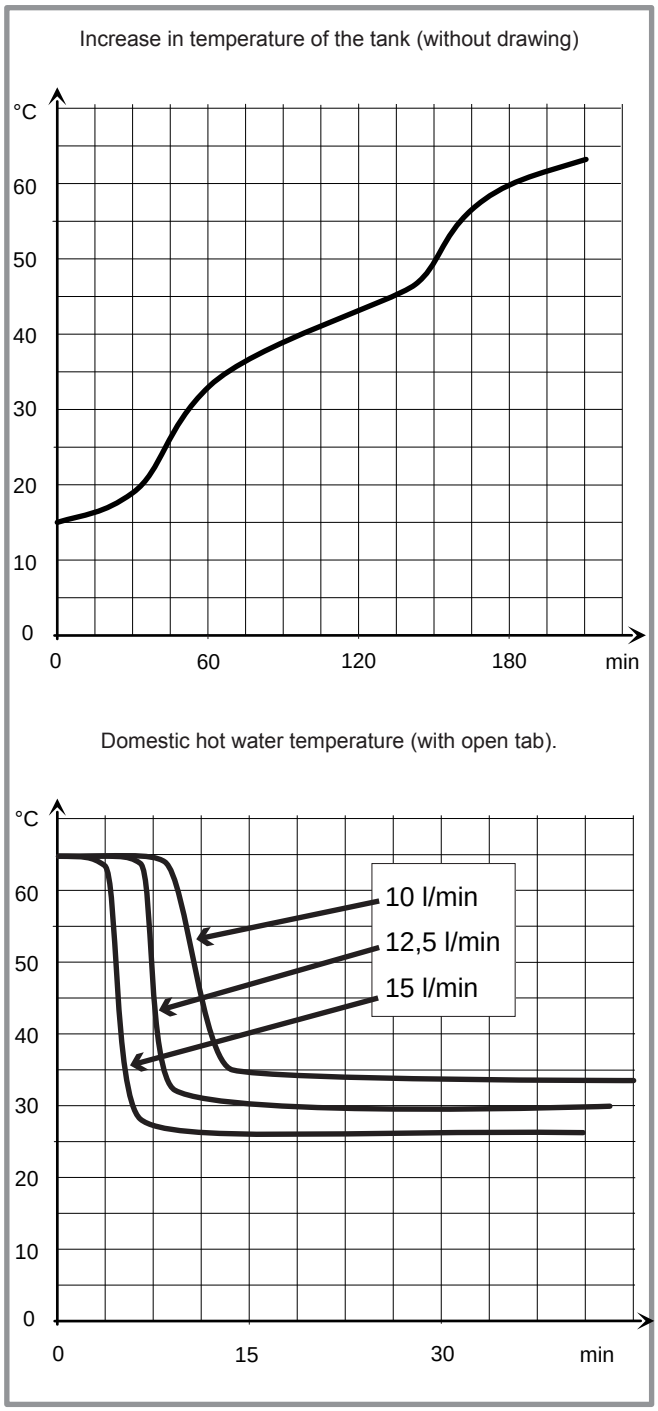


figure 11 - Domestic hot water performances

2 Installation

2.1 Statutory conditions for installation and servicing

The appliance must be installed and the maintained by an approved professional in accordance with the prevailing regulations and code of practice, in particular:

- The legislation on the handling of refrigerants.
- Heating installation with floor heating system.
- Low voltage electrical installations - Rules.

2.2 Use of new fuels

This boiler and its burner are compatibles with the **new domestic fuel containing FAME** (fatty acid methyl ester) on the condition that the rules are respected for the use and storage of this fuel (see user instructions, § Rules for use and storage of domestic fuel containing FAME).

2.3 Unpacking and reserves

2.3.1 Receipt

When the courier is present, carefully check the general appearance of the appliances, check that the outdoor unit has not been laid flat.

In the event of disagreement, write to the courier within 48 hours mentioning all reserves and send a copy of this letter to the After Sales Department.

2.3.2 Handling

The outdoor unit must not be in horizontal position during transport.

Transport in horizontal position creates a risk of damage to the inner tubes and the compressor suspensions.

Damage caused by transport in horizontal position are not covered by the warranty.

If required, the outdoor unit may be tilted only when being moved by hand (to get it through a doorway, or up stairs...).

This operation must be carried out carefully and the appliance must be immediately returned to the vertical position.

2.3.3 Containment of refrigerant circuits

All refrigerant circuits fear contamination from dust and moisture. If such pollutants introduced into refrigeration circuit, they can contribute to degrade the reliability of the heat pump.

☞ **It's necessary to ensure correct containment connections and refrigerant circuits (hydraulic unit, outdoor unit).**

☞ **In case of subsequent failure and expertise, the finding of the presence of moisture or foreign objects into the compressor oil would lead to systematic exclusion of warranty.**

- Check upon receipt that the fittings and the refrigeration circuit caps mounted on hydraulic unit and outdoor unit are properly seated and locked (impossible to loosen bare hands). If this's not the case, tighten them using an against wrench.
- Check also that the refrigerant connections are sealed (plastic caps or tubes crushed at the ends and soldered). If the caps must be removed during installation (tubes cut by example), put back them as soon as possible.

2.3.4 Accessories supplied

Accessories provided with the outdoor unit (figure 12).

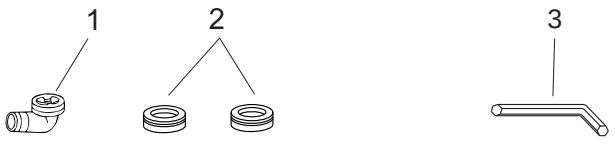
Accessories provided with the hydraulic unit (figure 13).

2.4 Positioning

The choice of the position is particularly important as having to move it later is a delicate operation that requires a qualified person.

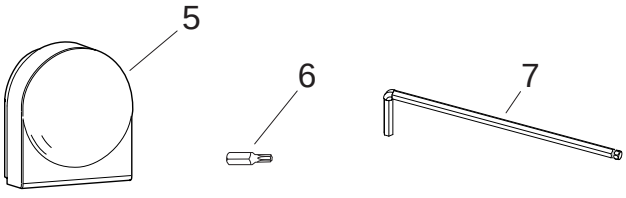
Choose the position of the outdoor unit and the hydraulic module after discussion with the client.

Respect the max. and min. distances between the hydraulic module and the outdoor unit (figure 23, page 20), as the performances and life of the system depend on this.



1	Elbow	For evacuating condensates
2	Plugs (x2) (depending on model)	
3	Allen key	to open the valves

figure 12 - Accessories supplied with the external unit



5	Outdoor sensor	to detect the outdoor temperature
6	Torx bit T^{20}	for access to the electrical housing
7	Ball end Allen key	for removing the chamber door

figure 13 - Accessories supplied with the hydraulic module

2.5 Installing the outdoor unit

2.5.1 Installation precautions

☞ **The outdoor unit must only be installed outdoors. If a shelter is required, it must have large apertures on all 4 sides and respect the space required for the installation (figure 15 and figure 16).**

- Prefer a sunny location, sheltered from strong and cold dominant winds.
- The appliance must be completely accessible for subsequent installation and maintenance work (figure 15 and figure 16).
- Ensure that the connections can be made easily with the hydraulic module.
- The outdoor unit can be exposed to the weather, however avoid installing it in places where it will become dirty or have excessive water dripping onto it (under a leaky drainpipe for example).
- When operating water may escape from the outdoor unit. Do not install the appliance on a terrace, prefer a place that has drainage (bed of sand or gravel). if it is installed in a region where the temperature may drop below 0°C for a long period, check that the presence of ice does not cause any danger. It is also possible to connect a pipe to evacuate to the outdoor unit (see figure 14).
- No obstacles must obstruct the circulation of air through the evaporator and the fan outlet.
- Keep the outdoor unit away from sources of heat or inflammable products.
- Ensure that the appliance does not disturb neighbours or users (noise level, draughts caused, low of the air blown causing a risk of freezing plants in its path).
- The surface on which the outdoor unit is fitted must:

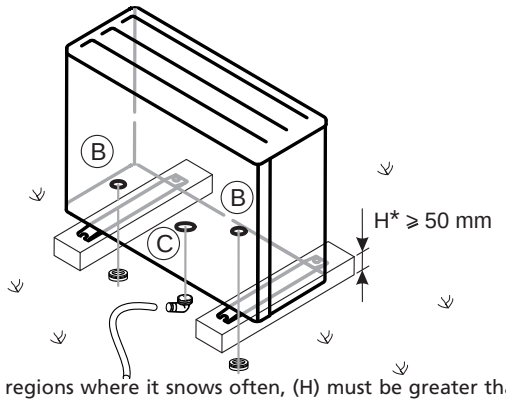
- be permeable (earth, gravel bed...),
- support the weight comfortably,
- permit it to be solidly attached,
- not transmit any vibrations to the accommodation (anti-vibration pads are available in option).

- The wall bracket can not be used in conditions likely to transmit vibrations, ground position is preferred.

2.5.2 Fitting the outdoor unit

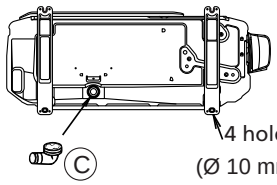
The outdoor unit must be raised by at least 50 mm from the ground. In snowy regions, this height must be increased but must not exceed 1.5 m.

- Attach the outdoor unit using screw and spring or split washers to ensure they do not come loose.



*In regions where it snows often, (H) must be greater than the average thickness of the snow

Depending on model



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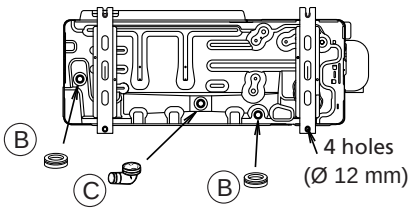
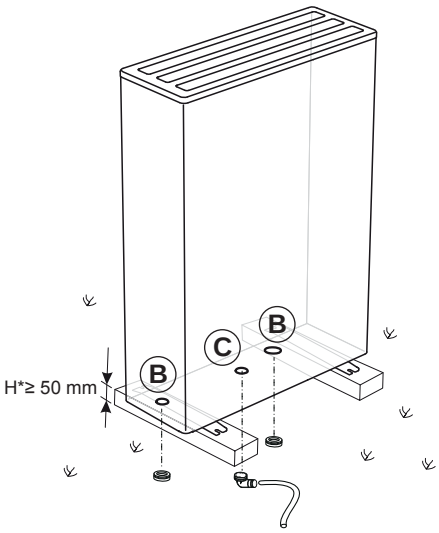


Depending on model



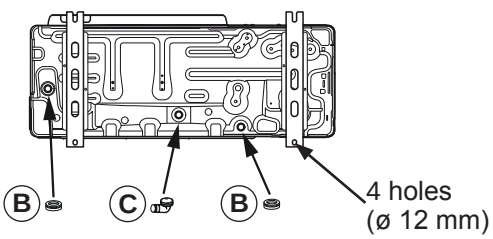


figure 14 - Fitting the outdoor unit, evacuation of the condensates

2.5.3 Connection of the condensate evacuation pipe

If an evacuation pipe must be used:

- Use the elbow provided (**C**) and connect a flexible hose of 16 mm diameter to evacuate the condensates.
- Use the plug(s) supplied (**B**) to obstruct the orifice of the condensate tray.

Fit so that gravity flow of the condensates is ensured (waste water, rainwater, gravel bed).

☞ **If installed in a region where the temperature may be below 0°C for a long period, the evacuation pipe must have a resistance tracer to avoid it icing over. The resistance trace must heat not just the evacuation pipe but also the bottom of the condensate drip tray of the appliance.**

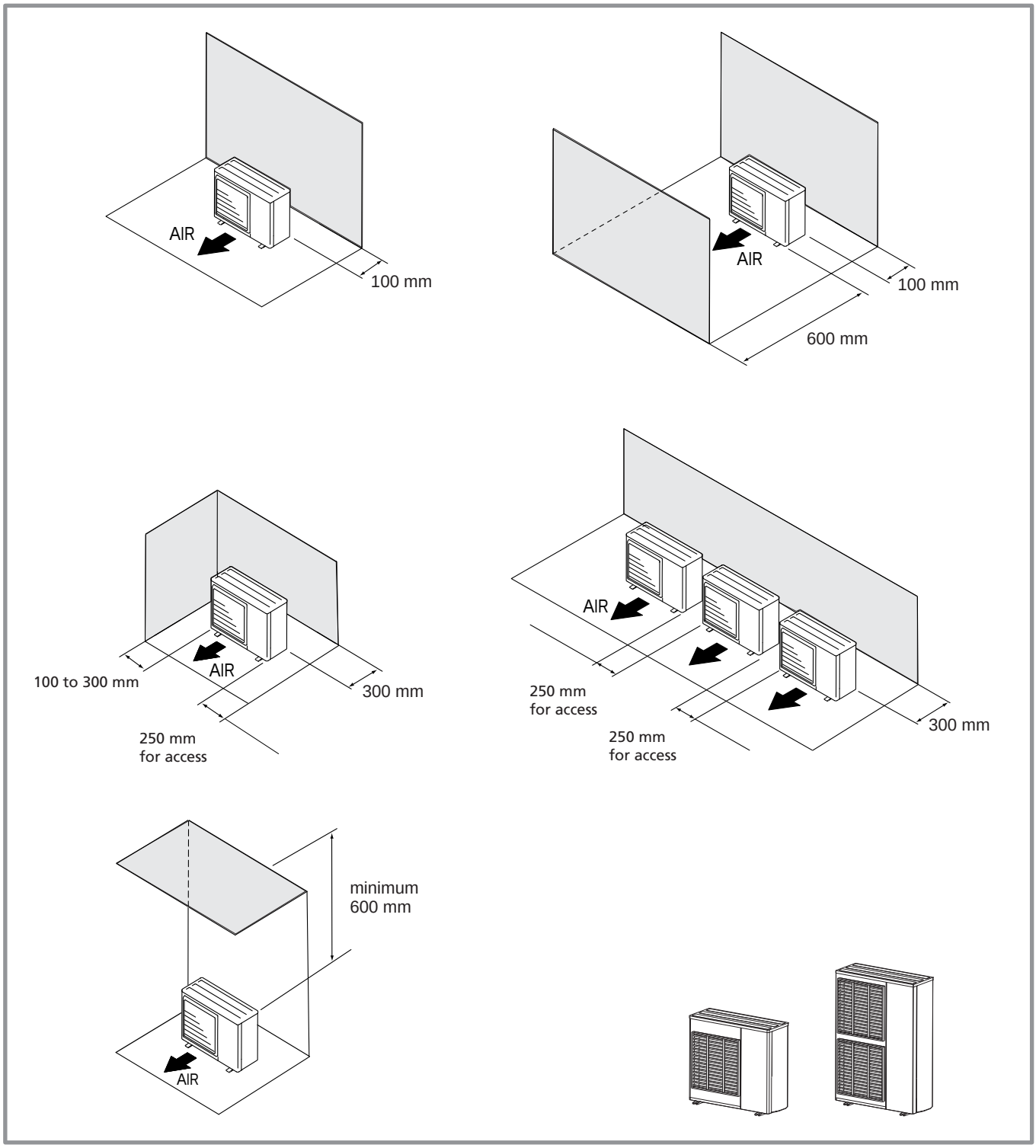


figure 15 - Minimum installation clearance around the outdoor unit (single phase models)

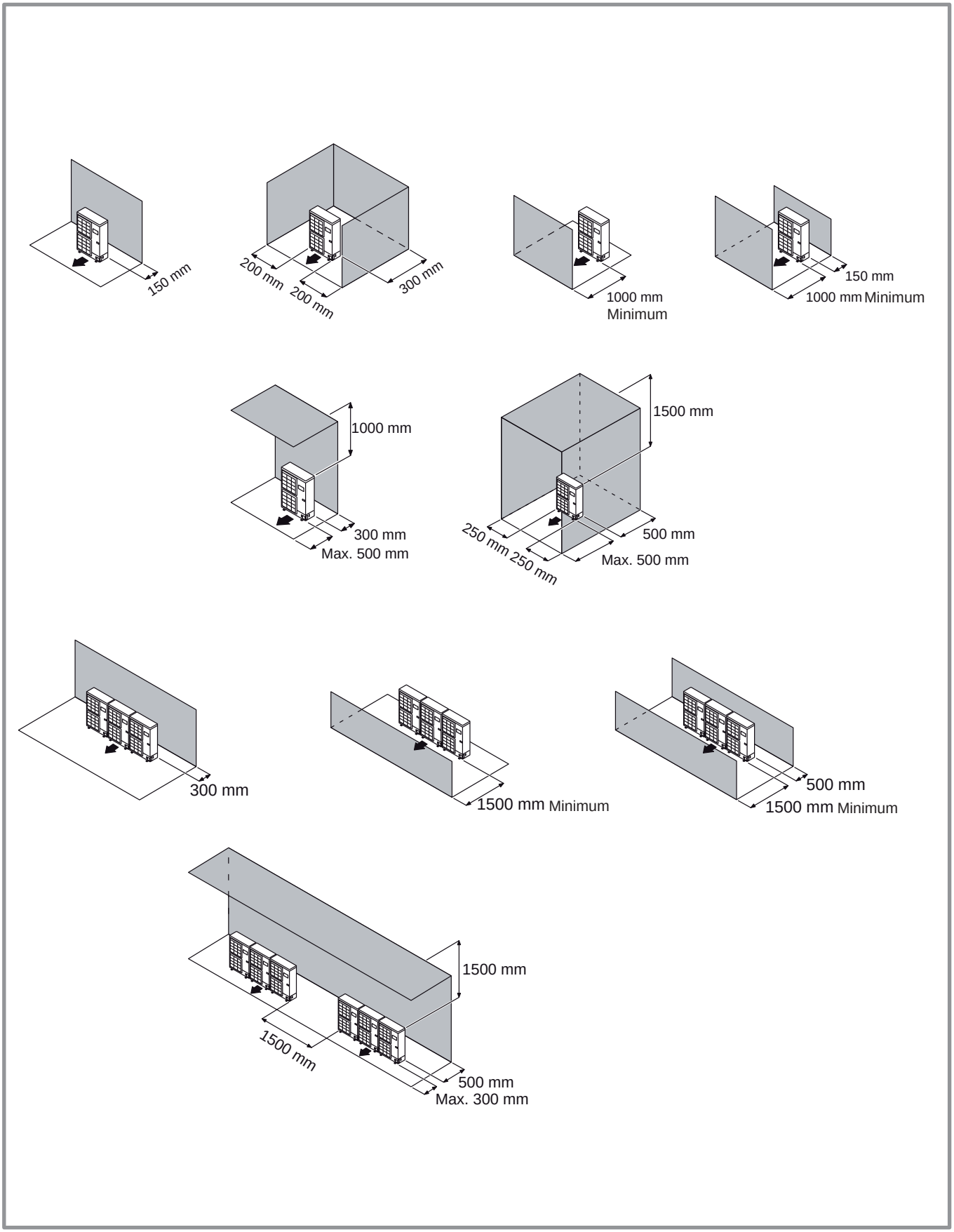


figure 16 - Minimum installation clearance around the outdoor unit (three phase models)

2.6 Installing the hydraulic module

2.6.1 Requirements of installation space

The room where the appliance operates must respect the regulations in force.

The appliance must be installed in a suitable and well ventilated room. The room must have a fresh air inlet (A) with a free non-blockable cross section of at least 50 cm^2 located in the lower part and a used air outlet (B) with a free non-blockable cross section of at least 100 cm^2 positioned in the upper part and opening directly outdoors (see figure 17).

The atmospheric conditions in the room must not be humid; humidity is damaging for electrical appliances. If the ground is humid or soft, use a base of sufficient height.

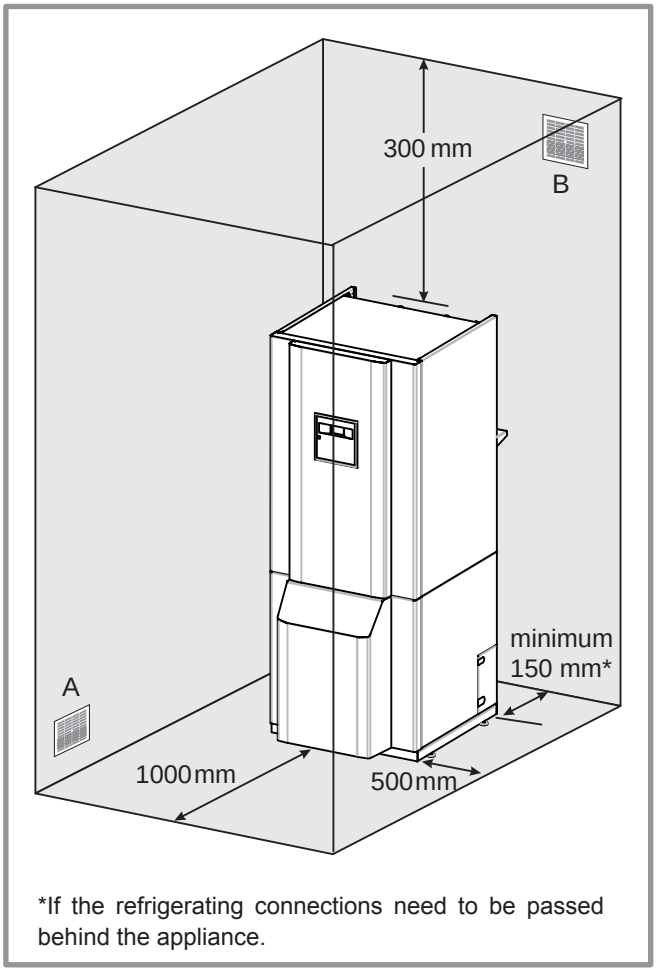
To facilitate the servicing operations and permit access to the various parts, it is recommended that sufficient space be left all around the hydraulic module.

☞ **The warranty on the heater will not cover any installation of the appliance in a chlorine rich atmosphere (hairdressers, launderette, etc.) or any other corrosive vapours.**

This equipment may not be installed in a bathroom or a shower room.

Be careful of the presence of inflammable gas close to the heat pump when it is installed, especially when brazing is required. The appliances are not anti-explosion and must therefore not be installed in an explosive atmosphere.

- To avoid condensation inside the condenser, remove the refrigerant circuit caps **only when building the refrigerant connections**.
- If the refrigerant connection only occurs at the end of the installation, be sure that the refrigerant circuit caps* remain in place and tight throughout the installation duration.
  * (hydraulic unit side and outdoor unit side)
- After every intervention on the refrigeration circuit and before final connection, take care to replace the plugs in order to avoid any pollution from the refrigeration circuit (The sealing with tape is prohibited).



*If the refrigerating connections need to be passed behind the appliance.

figure 17 - Minimum installation clearance around the hydraulic module

2.6.2 Evacuation pipe

(see figure 18)

The evacuation pipe must comply with the regulations in force.

The evacuation pipe must have suitable dimensions.

Minimum obligatory cross section = 2.5 dm^2 for a chimney of height between 5 and 20 m, or in bushels of 16 cm or Ø 18 cm.

The pipe must only be connected to a single appliance.

The pipe must be waterproof.

The pipe must be correctly thermally insulated in order to avoid any problems of condensation; otherwise the pipe must have a tube fitted with a system for collecting the condensates.

Use a good quality watertight tube that is compatible with the fuel used, possibly with a system for collecting the condensates.

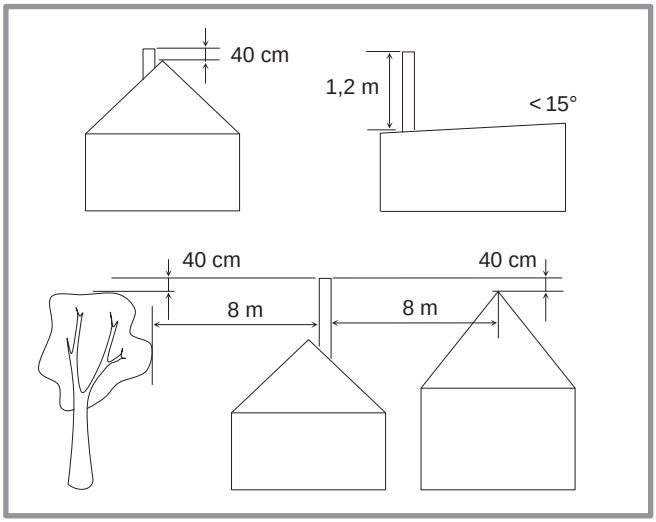


figure 18 - Height of the base of the evacuation duct (B23)

2.6.3 Connection pipe

The evacuation pipe must comply with the regulations in force.

The cross section of the connection pipe must not be smaller than the outlet nozzle of the appliance.

The connection pipe must be removable.

It is strongly recommended to fit a flue regulator to the pipe when the low pressure of the chimney is greater than 30 Pa.

The flue gas case is reversible (2 screws) and the smoke outlet axis may be offset with respect to the axis of the boiler to the right or to the left.

The evacuation nozzle is to be connected to the pipe so that there are no leaks.

2.7 Refrigerating connections

☞ **This appliance uses the refrigerating fluid R410A.**

Respect the legislation for handling refrigerating fluids.

2.7.1 Rules and precautions

• After each operation on the refrigerating circuit, and before the final connection, ensure that the plugs are fitted so as to avoid any pollution of the refrigerating circuit.

• Minimum necessary tools

- Set of manometers (*Manifold*) with hoses exclusively reserved for HFCs (Hydrofluorocarbons).
- Vacuum gauge whith isolation valves.
- Vacuum pump specially for HFCs (use of a traditional vacuum pump is authorized if, and only if, it is fitted with a non-return valve on the suction side).
- Flaring tool.
- Pipe-cutter.
- Deburring tool.
- Wrenches.
- Refrigerant gas leak detector certified (sensitivity 5g/year).

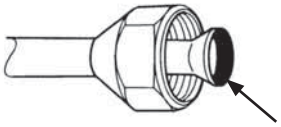
☞ **Provision on using tools that have been in contact with HCFCs (R22 for example) or CFCs.**

☞ **The manufacturer declines any liability with regard to the guarantee if the above instructions are not observed.**

• Tube expanders (flared connectors)

☞ **Lubrication with mineral oil (for R12, R22) is not allowed.**

- Only lubricate with polyolester refrigerating oil (POE). If POE oil is not available, fit without oil.



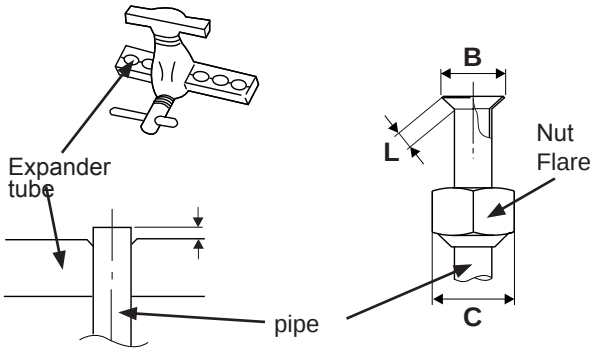
Coat the flared surface with **refrigerating oil POE**.
Do not use mineral oil.

• Brazing on the refrigerating circuit (if required)

- Silver brazing (40% minimum recommended).
- Brazing with a dry Nitrogen stream only.

• To eliminate the swarf from the pipes, use dry Nitrogen to avoid introducing humidity that can harm the operation of the appliance. In general, take all precautions to avoid humidity penetrating into the appliance.

• Thermally insulate the gas and liquid pipe to avoid all condensation. Use insulating sleeves that resist temperatures of over 90°C. In addition, if the level of humidity where the refrigerating pipes risks exceeding 70%, protect them with insulating sleeves. Use a 15 mm thicker sleeve if the humidity reaches 80%, and a 20 mm thicker sleeve if the humidity exceeds 80%. If the recommended thicknesses are not respected in the conditions described above, condensation will form on the surface of the insulation. Finally, ensure that insulating sleeves are used that have a thermal conductivity equal to 0.045 W/mK or lower when the temperature is equal to 20°C. The insulation must be impermeable to resist the steam passing during the defrosting cycles (glass wool is prohibited).



	Dimensions in mm		
ø pipe	L	B $^{0}/_{-0.4}$	C
9.52 (3/8")	2.5 to 2.7	13.2	22
15.88 (5/8")	2.9 to 3.1	19.7	29

figure 19 - Flaring for flared connections

2.7.2 Refrigerating connections

The connection between the outdoor unit and the hydraulic module **using only copper connections** (refrigerating grade), must be insulated separately.

Respect the diameters of pipe and the authorised lengths (figure 23, page 20).

Handle the pipes and pass them through the walls with the protection plugs in place.

If the distance between the outdoor unit and the hydraulic module exceeds the maximum pipe lengths shown in the table, then an additional charge of R410A is required.

The quantity of R410A added must be suited to the length of the refrigerating circuit in order to maintain the performances of the heat pump without however damaging the compressor (figure 25, page 22).

2.7.3 Flaring

- Cut the tube with a tube cutter to the required length without deforming it.
- Carefully deburr while holding the tube downwards to avoid introducing swarf into the tube.
- Remove the flare nut from the connector on the valve to be connected and fit the tube into the nut.
- Flare it leaving the tube protruding fro the expandable flaring tool.
- After flaring, check the state of the journal (**L**). It must not be scratched or signs of splitting. Also check the dimension (**B**).

2.7.4 Forming the refrigerating tubes

The refrigerating tubes must only be formed using a bending machine or a bending spring in order to avoid any risks of crushing or splitting.

☞ **Warning!**

• Remove the insulation locally to bend the tubes.

• Do not bend the copper to an angle of more than 90°.

• Do not bend the tubes more than 3 times at the same position otherwise this can cause the pipe to split (hardening of the metal).

2.7.5 Connecting the flare connections

☞ **The small tube must always be connected before the large one.**

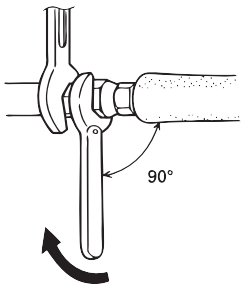
☞ **Pay special attention to the position of the tube aligned with its connector to avoid damaging the thread. A correctly aligned connector can be fitted easily by hand without much force being required.**

☞ **The refrigerating circuit is very sensitive to dust and humidity, check that the zone around the connection is dry and clean before removing the plugs that protect the refrigerating connectors.**

- Remove the plugs from the pipes and refrigerating connections.
- Place the tube in front of the flare connector and screw on the nut by hand, holding the connector with a spanner, until contact is made.
- Respect the tightening torques defined.

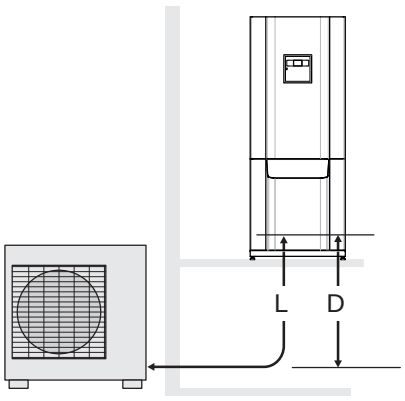
Spanner

Torque wrench



Designation	Tightening torque
Flare nut 9.52 mm (3/8")	33 to 42 Nm
Flare nut 15.88 mm (5/8")	63 to 77 Nm
Plug (A) 5/8"	30 to 35 Nm
Plug (B) 3/8", 5/8"	10 to 12 Nm

figure 20 - Tightening torques



Heat pump Model	*Gas and liquid pipes*				
	Gas	*Liquid*	*Minimum length (L)*	*Maximum * length (L)*	*Maximum ** difference in height (D)*
hybrid duo 10, 13, 16 single phase	5/8"	3/8"	0	15	25
hybrid duo 10, 13, 16 three phase	5/8"	3/8"	5	15	20

*: without additional charge of R410A

**: taking account of any additional charge (see page 24)

figure 21 - Diameters of the pipe (in inches) and authorised lengths (in metre)

Refrigerating connections	*Outdoor unit connectors*	*Diameter of refrigerating connections*	*Hydraulic module connectors*
Gas	5/8"	(D1) 5/8"	5/8"
liquid	3/8"	(D2) 3/8"	3/8"

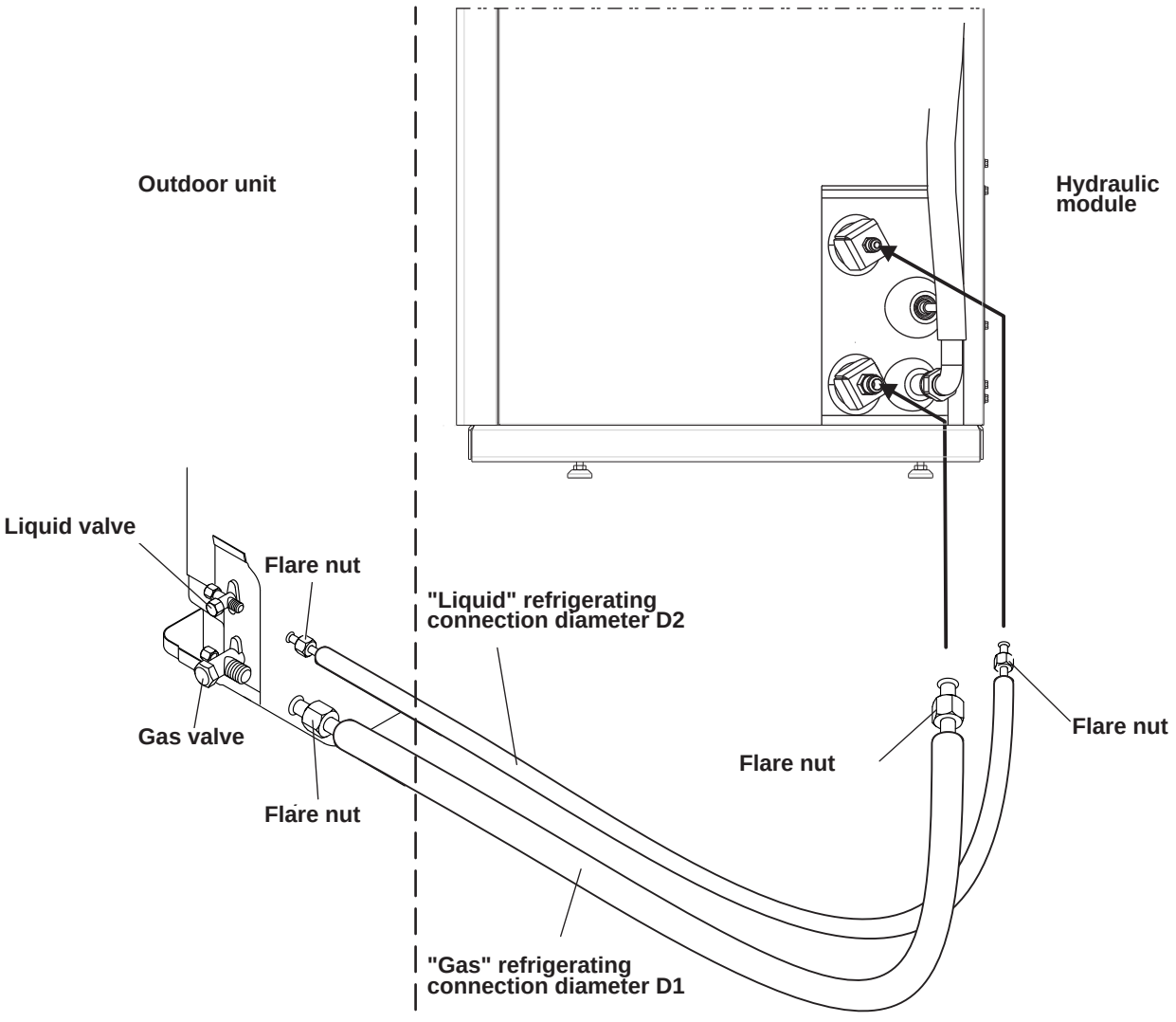


figure 22 - Connecting the flare connections

2.8 Commissioning of the refrigerating gas installation

☞ **This operation is reserved for installers familiar with the legislation for handling refrigerants.**

☞ **Creating a vacuum with a vacuum pump is essential (see ANNEX 1).**

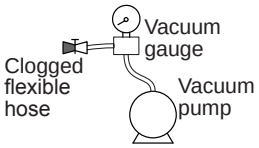
☞ **Never use equipment used beforehand with any refrigerant other than a HFC.**

☞ **Remove the refrigerant circuit caps only when building the refrigerant connections.**

☞ **Unfavorables conditions :**
- If the outdoor temperature is between +5 and +10 °C, it's obliged to have a vacuum gauge for validate the pump down operation and use method 3 empty. (**see ANNEX 2**).
- If the outdoor temperature is below +5 °C, it's strongly not recommended to do the filling the installation with gas.

ANNEX 1

Method for calibration and control of a vacuum pump



- Check the oil level of the vacuum pump.
- Connect the vacuum pump with the vacuum gauge according to the scheme.
- Pump down during 3 minutes.
- After 3 minutes, the pump reaches its threshold value and the vacuum gauge needle does not move.
- Compare the obtained pressure with the value of the table. Depending on the temperature, this pressure must be less than the value indicated in the table.

  => If it's not the case, replace the gasket, flexible hose or the pump.

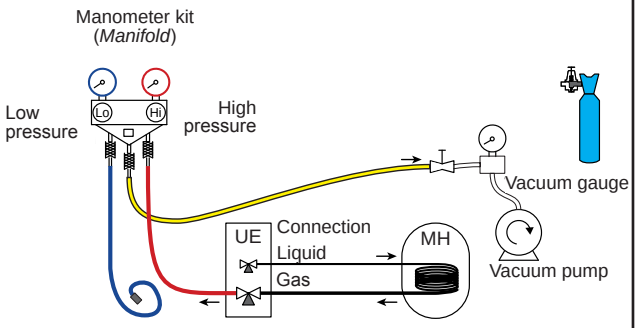
T °C	5°C<T<10°C	10°C<T<15°C	15°C < T
Pmax			
- bar . .	. . . 0.009 . . .	. . . 0.015 . . .	. . . 0.020. . .
- mbar	. . . . . 9	. . . . 15	. . . .20 . . . .

ANNEX 2

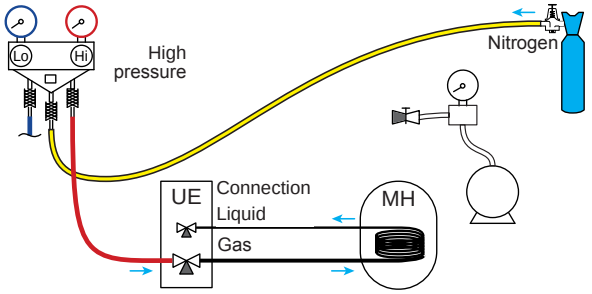
Method 3 empty

- Connect the high pressure hose to the *Manifold*, ("Gas" connection). A valve must be mounted on the flexible hose from the vacuum pump in order to isolate it.

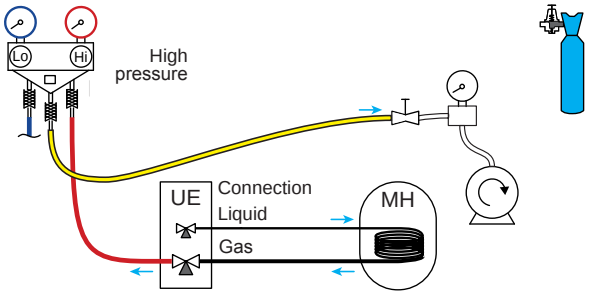
a) Pump down to the desired value (see table ANNEX 1),



b) Stop the vacuum pump, close the valve end of the service hose (yellow). Connect the hose to the expansion valve of the nitrogen bottle, inject 2 bars, close the flexible hose valve,



c) Reconnect the flexible hose to the vacuum pump, turn on and gradually open the hose valve.



d) Repeat this at least three times.

☞ **<u>Reminder</u> : It's strictly forbidden to perform these operations with refrigerant.**

2.8.1 Commissioning procedure

• Check before connecting

<u>"Gas" connection control (large diameter)</u>.

- Connect the "Gas" connection to the outdoor unit.
- Blow dry nitrogen into the "Gas" connection and observe this end:

  · If water or impurities emerge, use a new refrigerant connection.

  · Otherwise, perform the flare and connect immediately the refrigerant connection to the hydraulic unit.

<u>"Liquid" connection control (small diameter)</u>.

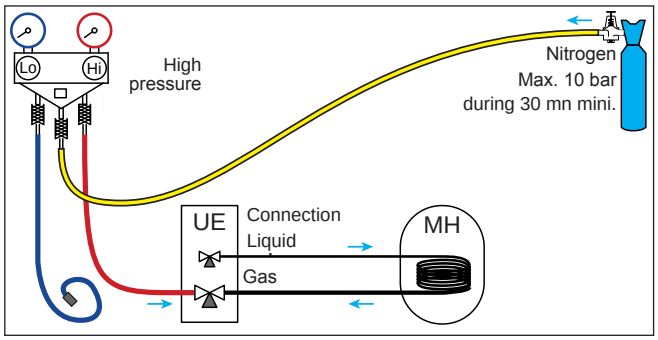
- Connect the "Liquid" connection to the outdoor unit.
- Blow dry nitrogen into **"Gas" connection – condensor - "Liquid" connection** assembly and Observe this end (Outdoor unit side).

  · If water or impurities emerge, use a new refrigerant connection.

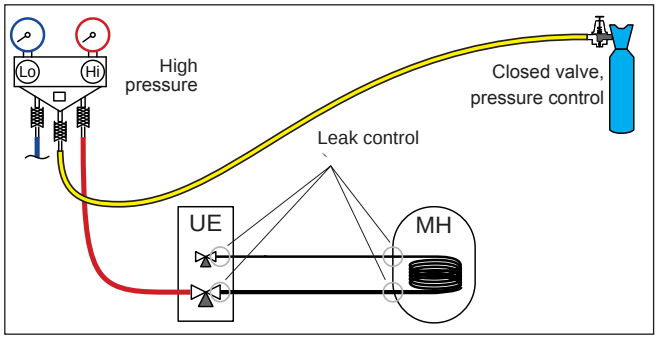
  · Otherwise, perform the flare and connect immediately the refrigerant connection to the outdoor unit.

• First seal test

- Remove the protective plugs (**B**) from the charging hole (*Schrader*) in the "Gas" valve (large diameter).
- Connect the high pressure hose to the *Manifold*.
- Connect the bottle of nitrogen to the *Manifold* (Use only dry nitrogen type U)
- Pressurize the refrigerant circuit with nitrogen (10 bar maximum) ("Gas" connection – condensor - "Liquid" connection assembly).
- Let the circuit under pressure for 30 minutes.



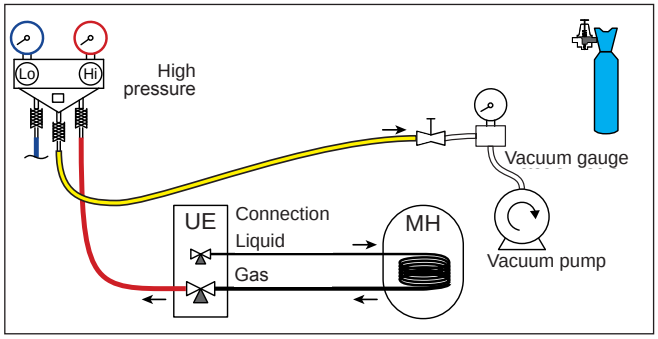
- Search for leaks with a leak detector product, repair and repeat the test.



- When the pressure is stable and leakage is excluded, drain nitrogen letting a pressure above atmospheric pressure (0,2 to 0,4 bar).

• Creating a vacuum and filling the refrigeration connections with gas

- If necessary, calibrate the *Manifold* gauge to 0 bar. Adjust the vacuum gauge to the atmospheric pressure (around 1013 mbar)
- Connect the vacuum pump to the *Manifold*. Connect a vacuum gauge if the vacuum pump is not equipped.



- Create a vacuum until the residual pressure* in the circuit falls below the value given in the following table. (* measured with the vacuum gauge)

T °C	5°C<T<10°C	10°C<T<15°C	15°C < T
Pmax - bar . . - mbar	. . . 0.009 . . . . . . 9	. . . 0.015 . . . . . . 15	. . . 0.020 . . . . . .20 . . . . .

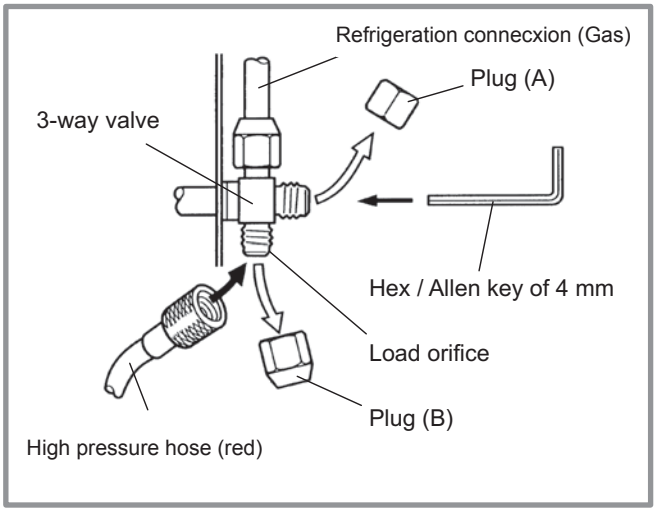


figure 23 - Connexion of the hose on the "Gaz" valve

- Let the pump continue to operate for another 30 minutes minimum after reaching the vacuum.
- Close the *Manifold* valve and then stop the vacuum pump **without disconnecting any of the hoses in place**.

☞ **If the outdoor temperature is between +5 and +10 °C, use method 3 empty (see ANNEX 2)**

- Remove the access plugs (A) from the valve controls.
- If an additional charge is requires, add the additional charge before filling the hydraulic unit with gas. Please refer to the para. "Additional charge", page 23.
- First of all fully open the "Liquid" valve (small) and then the "Gaz" valve (large) using a hex key (counterclockwise direction) without forcing excessively against the stop.
- Remove the hose rapidly to the *Manifold*.
- Refit the 2 original caps (be sure they are clean) and tighten them to the recommended tightening torque figure 22. The sealing is performed in the caps only metal to metal.

The outdoor unit does not contain any additional refrigerant, enabling the installation to be purged.

Flushing is strictly forbidden.

2.8.2 Sealing test

Once the refrigeration circuit has been gassed as described above, check that all the refrigeration connectors are gas-tigh (4 connectors).

The sealing test must be performed with an approved gas detector. If the flarings have been made correctly, there should be no leaks.

☞ **If there is a leak:**

- Bring the gas into the outdoor unit (pump down). The pressure should not drop below atmospheric pressure (0 bar to read on *Manifold*) so as not to contaminate the recovered gas with air or moisture.
- Make the connection again.
- Repeat the commissioning procedure.

model hybrid duo 10 single phase	**40 g of** R410A **per extra m**	
length of connection	15 m	25 m
Additional charge	none	400 g
model hybrid duo 13 single phase	**50 g of** R410A **per extra m**	
length of connection	15 m	25 m
Additional load	none	500 g
model hybrid duo 16 single phase	**40 g of** R410A **per extra m**	
length of connection	15 m	25 m
Additional load	none	400 g
model hybrid duo 11, 14, 16 3-phase	**50 g of** R410A **per extra m**	
length of connections	15 m	20 m
Additional load	None	250 g

figure 24 - Additional charge

2.8.3 Additional charge

The charge of the outdoor units corresponds to the maximum distances between the outdoor unit and hydraulic module defined in figure 23, page 20. In the case of longer distances, an additional charge of R410A needs to be added. The additional charge depends, for each type of appliance, on the distance between the outdoor unit and the hydraulic module. The additional charge of R410A must only be added by a qualified specialist.

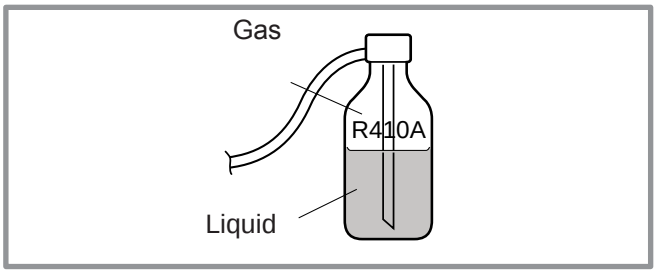


figure 25 - R410A gas bottle

• Example for a hybrid model heat pump duo 16 mono

An outdoor unit at a distance of 24 m from the hydraulic requires an additional charge of:

additional charge = *(24 – 15) x 40 = 360 g*

The charge must be added after evacuation and before adding the gas to the hydraulic module, as follows:

- Disconnect the vacuum pump (yellow flexible hose) and in place connect a bottle of 410A in the liquid drawing **position**.
- Open the tap of the bottle.
- Drain the yellow flexible hose by loosening it slightly on the manifold side.
- Place the bottle on precision scales with a minimum of 10g. Note the weight.
- Carefully open the blue tap slightly and monitor the value displayed on the scales.
- As soon as the value displayed has dropped by the value of the calculated additional charge, close the bottle and disconnect it.
- Sharply disconnect the flexible hose from the appliance.
- Add the gas to the hydraulic module.

☞ **Warning!**

- Only use R410A!
- Only use tools that are adapted to the R410A (set of pressure gauges).
- Always add charge in liquid phase.
- Do not exceed the maximum length or difference in height.

2.8.4 Collect the refrigerating fluid in the outdoor unit

☞ **Only for the three phase models**

Carry out the following procedures to collect the refrigerating fluid.

1. Place the Start/Stop switch in the 0 position (ref. **27**, figure 9, page 10).
2. Remove the front panel of the hydraulic module. Move the DIP SW1 of the interface board to ON.
3. Place the Start/Stop switch in the 1 position. (the green and red LEDs start flashing; 1s lit/1s extinguished).
4. The outdoor unit starts in the cold mode for approximately 3 minutes after it is switched on. Close the liquid valve on the outdoor unit 1 minute after the outdoor unit is started.
5. Close the gas valve on the outdoor unit 1 to 2 minutes after closing the liquid valve, while the outdoor unit continues to turn.
6. Disconnect the electrical power supply.

Remarks:

- Check that the Start/Stop switch is in the 0 position before touching the DIP SW1.
- When the heat pump is operating, the collection operation may not be activated, even if the DIP SW 1 switch is moved to ON.
- Do not forget to return the DIP SW 1 switch to OFF at the end of the collection operation.
- If the collection operation fails, try the procedure again by turning off the machine and opening the "gas" and "liquid" valves. After 2 to 3 minutes repeat the collection operation.

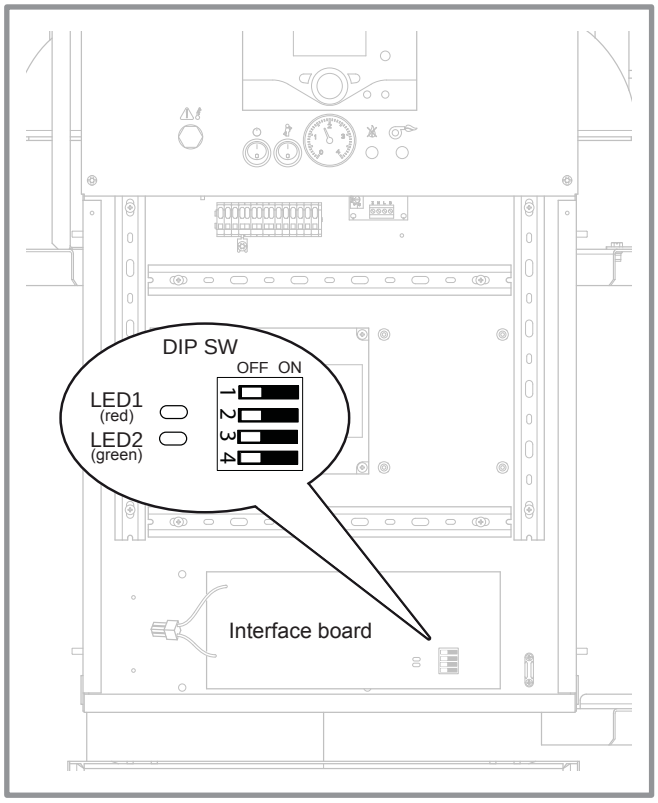


figure 26 - Position of the DIP switches and the LEDs on hydraulic module interface board

2.9 Hydraulic connection

2.9.1 General

The connection must comply with trade practices according to the regulations in force.

The heating circulation pump is integrated into the hydraulic module.

Connect the pipe of the central heating to the hydraulic module respecting the direction of the circulation.

The diameter of the pipe, between the hydraulic module and the heating manifold, must be at least equal to 1 inch (26x34 mm).

Calculate the diameter of the pipes in function of the flow rates and lengths of the hydraulic systems.

Tightening torque: 15 to 35 Nm.

Use union connectors to facilitate the removal of the hydraulic module.

Prefer the use of flexible connector hoses to avoid transmitting noise and vibrations to the building.

Connect the evacuations of the drain tap and the safety valve to the drain.

Reminder: Make the assembly impervious respecting trade practices in force for the plumbing work:

- Use suitable seals (fibre seals, O rings).
- Use Teflon or hemp tape.
- Use sealant (synthetic as required).

There is no need for glycol. If water containing glycol is used, carry out an annual check of the quality of the glycol.

Reminder: The presence on the installation, of a disconnection function of the CB type, designed to avoid returns of heating water to the drinking water system, is required by articles 16.7 and 16.8 of the Typical Departmental Domestic Rules.

In certain installations, the presence of different metals may cause corrosion problems; in which case the formation of metal particles and sludge may be observed in the hydraulic circuit.

In this case, it is preferable to use a corrosion inhibitor in the proportions recommended by its manufacturer.

It is also necessary to ensure that the water treated does not become aggressive.

2.9.2 Connection to the domestic circuit

Place a safety group with a valve calibrated to 7 bar on the cold water inlet, and connect an evacuation pipe leading to the drain.

To allow the tank to be emptied by siphoning, the safety unit must be placed at a lower level than the cold water inlet.

It is recommended that the hot water outlet is fitted with a thermostatic mixing valve.

2.9.3 Connection to a fan coil unit circuit

For all heat pumps of more than 11 kW, a buffer tank has to be fitted to this circuit (minimum capacity: 50 litres).

2.9.4 Rinsing the installation

Before connecting the hydraulic module to the installation, rinse the heating system correctly to eliminate the particles that could compromise the correct operation of the appliance.

Do not use solvents or aromatic hydrocarbons (petrol, diesel, etc.).

For older installations, fit a decanting pot of adequate capacity on the boiler return circuit and at the lowest point equipped with a drain, in order to collect and evacuate the impurities.

Add to the water an alkaline product and a dispersant.

Rinse the installation several times before final filling.

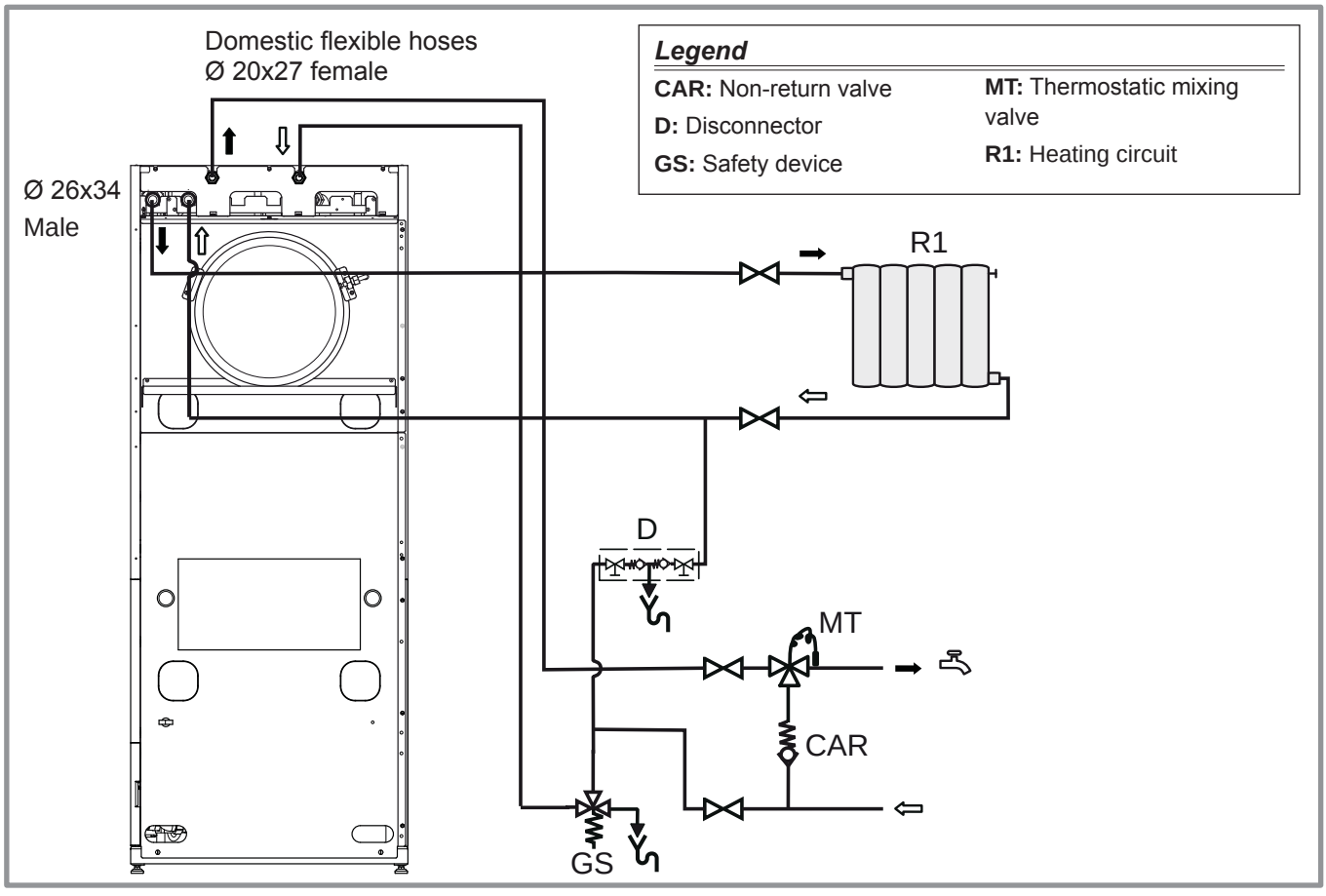


figure 27 - Hydraulic principle diagram

2.9.5 Filling and draining the installation

☞ **Compulsory! Fill and pressurise the domestic tank before filling the heater with water. The warranty of the appliance will not apply if this procedure is not respected.**

- Check the attachment of the pipes, that the connectors are tight and that the hydraulic module is stable.
- Check the direction of circulation of the water and that all of the valves are open.
- Deactivate the non-return valves (figure 31).
- Fill the installation.
- When filling, do not operate the circulation pump, open all of the drains of the installation and the drains of the hydraulic module (figure 33) to evacuate the air in the pipes.
- Close the drains and add water until the pressure of the hydraulic circuit reaches 1 bar.
- Check that the hydraulic circuit is drained correctly. Close the non-return valves.
- Check that there are no leaks and that the circulation pumps are not seized (release them if necessary).

After the step "verifications and commissioning" (see page 34), once the machine is running, drain the hydraulic module again (2 litres of water). If the pressure is less than 0.5 bar, the heat pump stops and displays the error 369.

2.10 Connection of the fuel supply

Refer to the instructions supplied with the burner.

In order for the burner to operate correctly, a filter (60 µm) must be installed on the fuel supply pipe.

Pass the fuel hoses in the passage (either on the right or left) at the rear of the appliance.

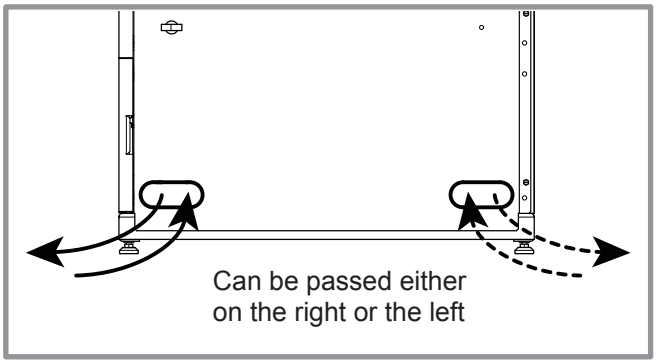


figure 28 - Ducts for flexible fuel hoses

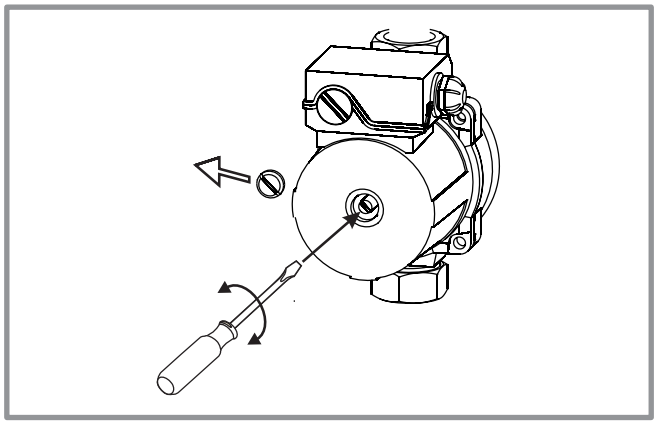


figure 29 - Release of the circulation pump

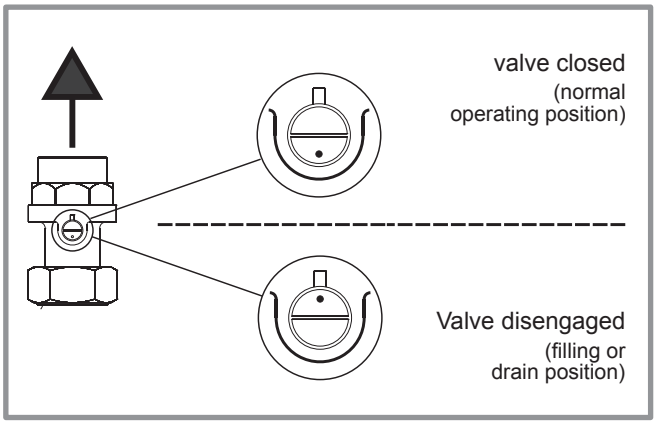


figure 30 - Non-return valve

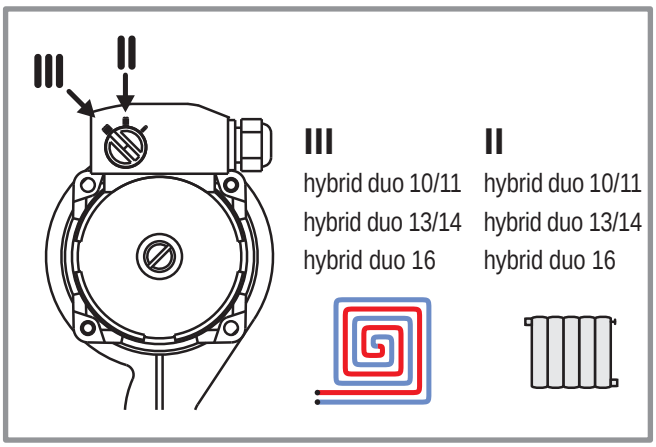


figure 31 - Recommended speed for the radiator circuit

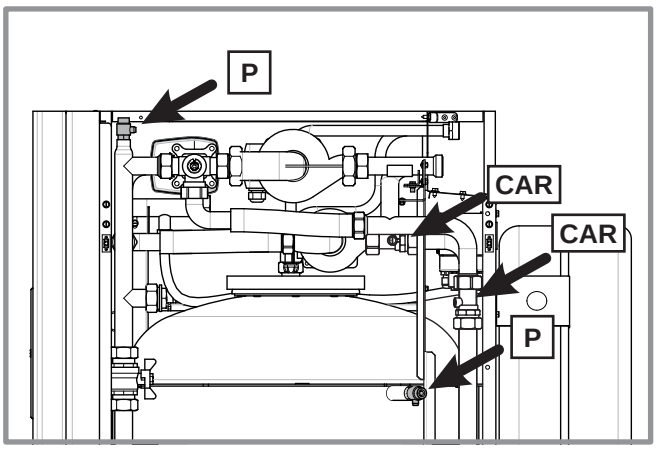


figure 32 - Drains (P) and non-return valves (CAR)

2.11 Electrical connections

Before carrying out any work, ensure that the general electrical power supply is switched off.

2.11.1 Characteristics of the electrical power supply

The electrical installation must comply with the regulations in force.

The electrical connections will only be made when all of the other assembly operations (attachment, assembly,...) have been carried out.

☞ **Warning!**

The contract taken out with the energy supplier must be sufficient to cover the power of the heat pump as well as the sum of the power requirements of all of the appliances likely to be operated at the same time. If the power supply is insufficient, check with your energy supplier the value of the power supply defined in your contract.

Never use electrical sockets for the power supply.

The heat pump must be powered by special lines that are protected from the electrical housing by bipolar circuit breakers dedicated to the heat pump, curve D for the outdoor unit

The electrical installation must be equipped with a differential protection of 30 mA.

This appliance is designed to operate at a nominal voltage of 230 V, +/- 10%, 50 Hz for the single phase model and at a nominal voltage of 400 V, +/- 10%, 50 Hz for the three phase model.

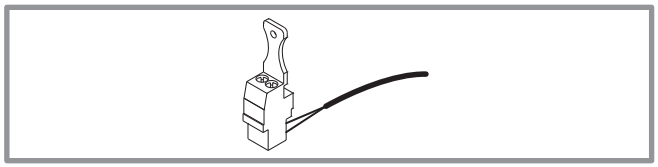
2.11.2 General remarks on the electrical connections

It is essential that the phase-neutral polarity is respected for the electrical connection.

Clamp the cables with stuffing glands to avoid any accidental disconnection of the conductive wires.

• Connection to the connectors:

- Remove the corresponding connector and make the connection.
- Tighten the screws of the terminal blocks correctly. Failure to tighten sufficiently may cause overheating, faults or even fires.



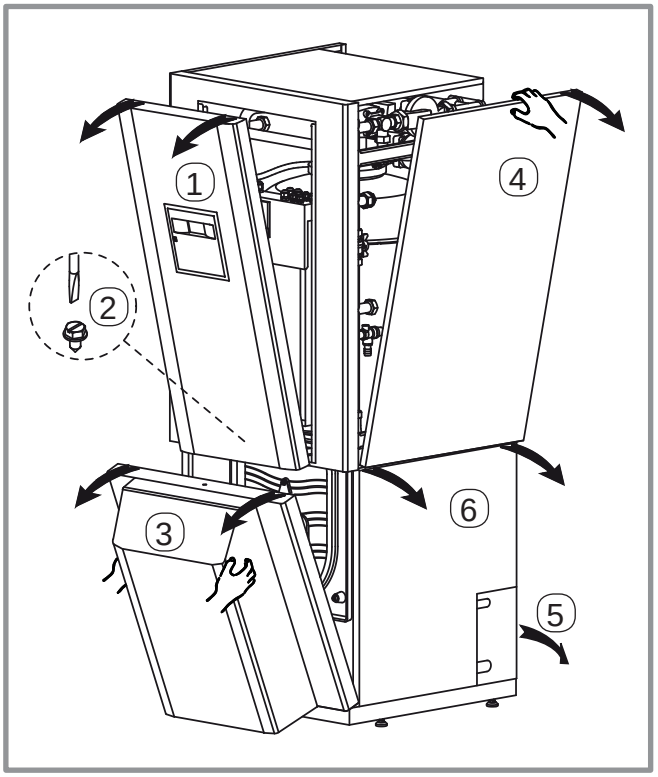


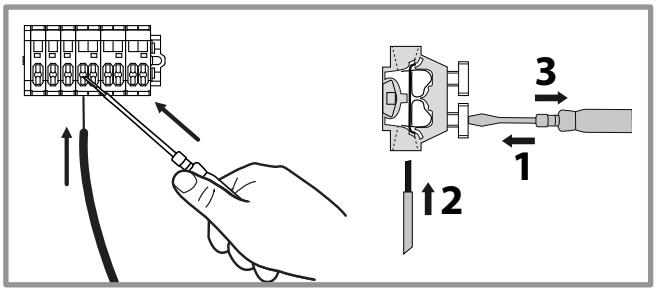
figure 33 - Removing the covers

• Connection to the spring terminal blocks:

The earth connection and its continuity must be ensured.

Rigid wire:

- Bare the end of the wire over a length of around 10 mm.
- Slide the wire into the orifice provided.
- Push the spring with a screwdriver so that the wire enters the cage.
- Remove the screwdriver and check that the wire remains blocked in the cage, and pull it to check.



2.11.3 Overall view of the electrical connections

The electrical diagram of the hydraulic module is detailed in figure 60, page 60.

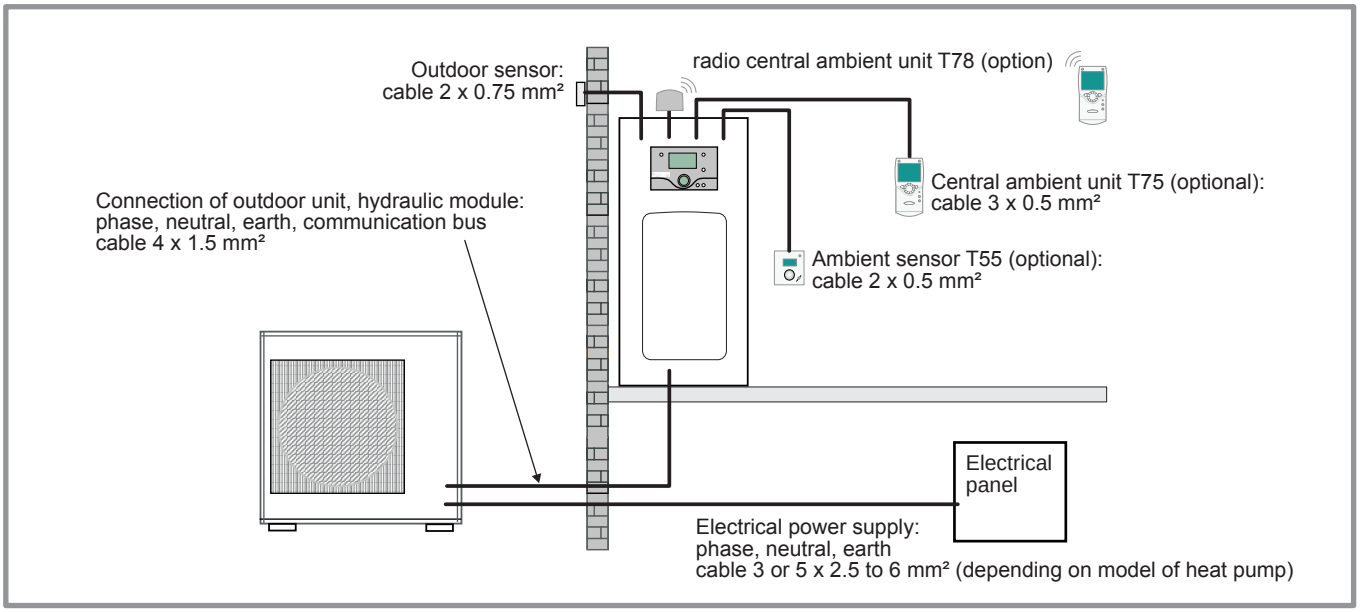

Outdoor sensor:
cable 2 x 0.75 mm²
radio central ambient unit T78 (option)
Central ambient unit T75 (optional):
cable 3 x 0.5 mm²
Connection of outdoor unit, hydraulic module:
phase, neutral, earth, communication bus
cable 4 x 1.5 mm²
Ambient sensor T55 (optional):
cable 2 x 0.5 mm²
Electrical
panel
Electrical power supply:
phase, neutral, earth
cable 3 or 5 x 2.5 to 6 mm² (depending on model of heat pump)

figure 34 - General diagram of the electrical connections for a simple installation (1 heating circuit)

2.11.4 Cross section of the cable and protection rating

The cross sections of the cables are provided for information only and do not dispense the electrician from checking that these cross sections correspond to the requirements and satisfy the standards in force.

• Power supply of the outdoor unit:

Single phase heat pump		***230 V - 50 Hz electrical power supply***	
Model	***Absorbed max. power***	***Connector cable (phase, neutral, earth)***	***Circuit breaker rating curve D***
hybrid duo 10	3910 W	3 x 2.5 mm²	20 A
hybrid duo 13	4600 W	3 x 4 mm²	25 A
hybrid duo 16	5980 W	3 x 6 mm²	32 A
Heat pump three phase		***400 V - 50 Hz electrical power supply***	
Model	***Absorbed max. power***	***Connector cable (3 phases, neutral, earth)***	***Circuit breaker rating curve D***
hybrid duo 11	5865 W	5 x 2.5 mm²	20 A
hybrid duo 14	6555 W		
hybrid duo 16	7245 W		

• Inter-connection between the outdoor unit and the hydraulic module: The hydraulic module is powered by the outdoor unit, via a cable 4 x 1.5 mm² (phase, neutral, earth, communication bus).

• Outdoor sensor, ambient sensor, ambient central unit

For the outdoor sensor, use a cable 2 x 0.75 mm².

For the ambient sensor, use a cable 2 x 0,5 mm², telephone type cable.

Pour the central ambient unit, use a cable 3 x 0,5 mm², telephone type cable.

2.11.5 Electrical connections on outdoor unit side for single phase model

Access to the connector terminals

- Remove the front panel, remove the cover.
- Make the connections in compliance with the diagram (figure 45, page 31).

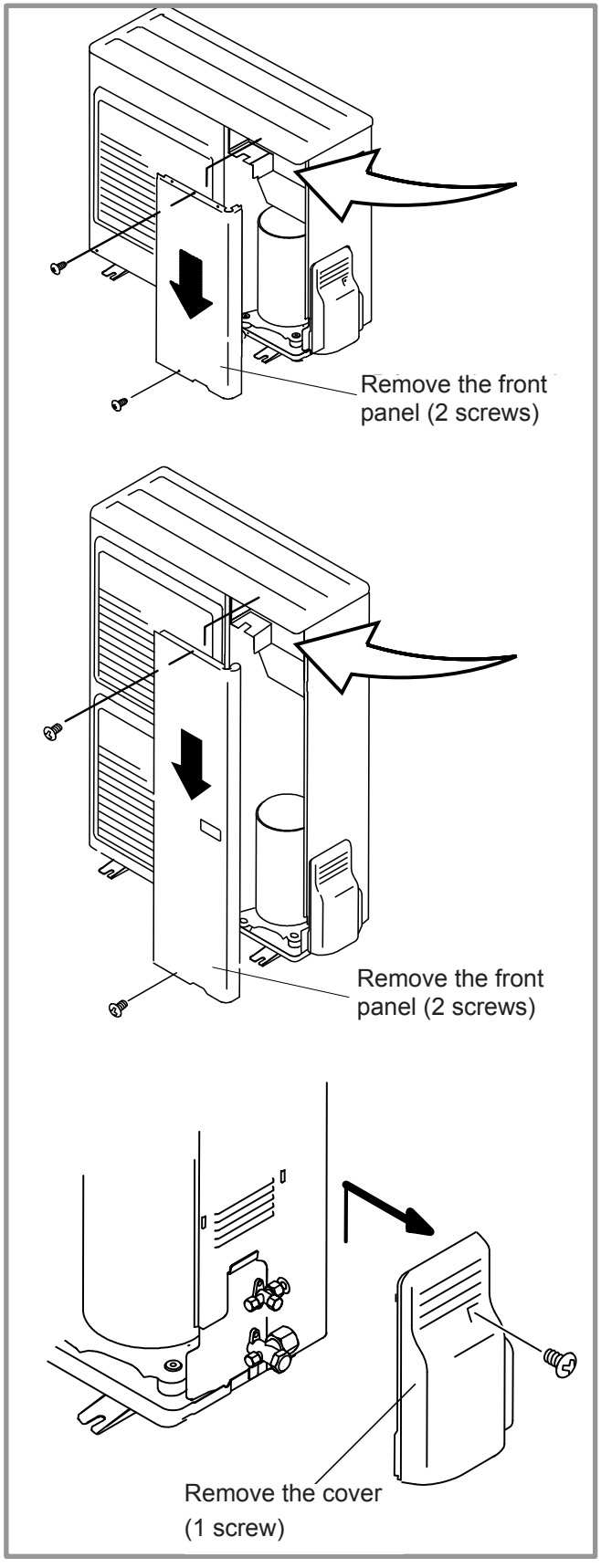


figure 36 - Access to the terminal block of the outdoor unit

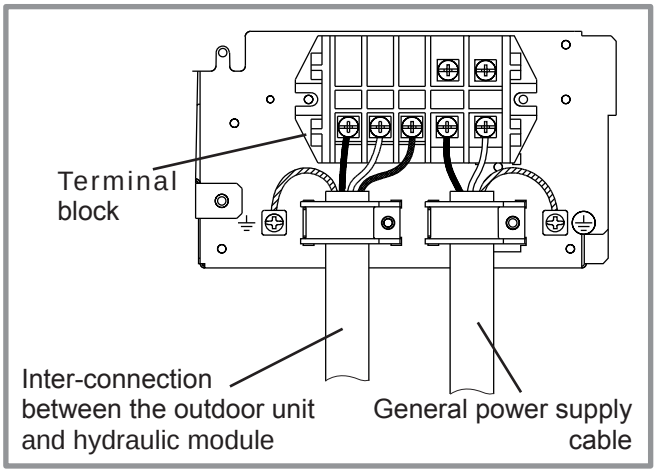


figure 37 - Connections to the terminal block of the outdoor unit

- Use the cable clamps to avoid any accidental disconnection of the conductive wires.
- Use the attachment plate to hold the cables against the insulating plate.

☞ **Attach the cables so that they are not in contact with the pipes and the valves (see figure 39).**

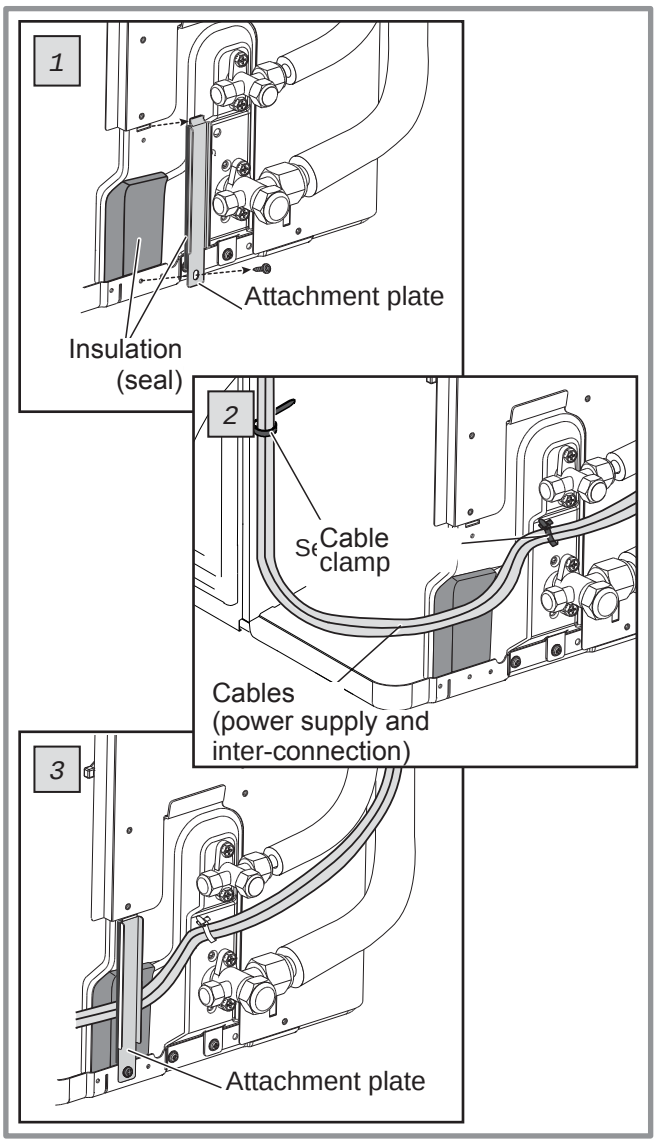


figure 35 - Finalising of the connection of the outdoor unit

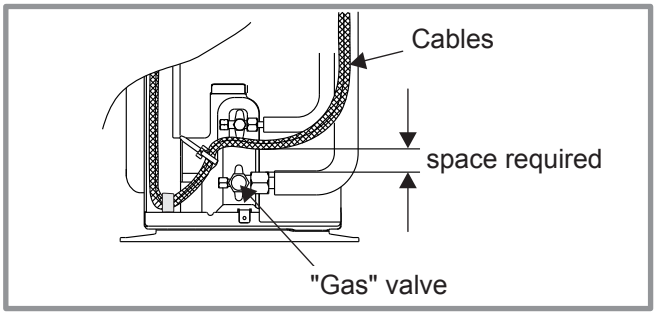


figure 38 - Viewing the difference between the "gas" valve and the electrical cables

2.11.6 Electrical connections on the outdoor unit side for the three phase model

Access to the connector terminals

- Remove the front panel. Remove the screws and the cover of the front panel.

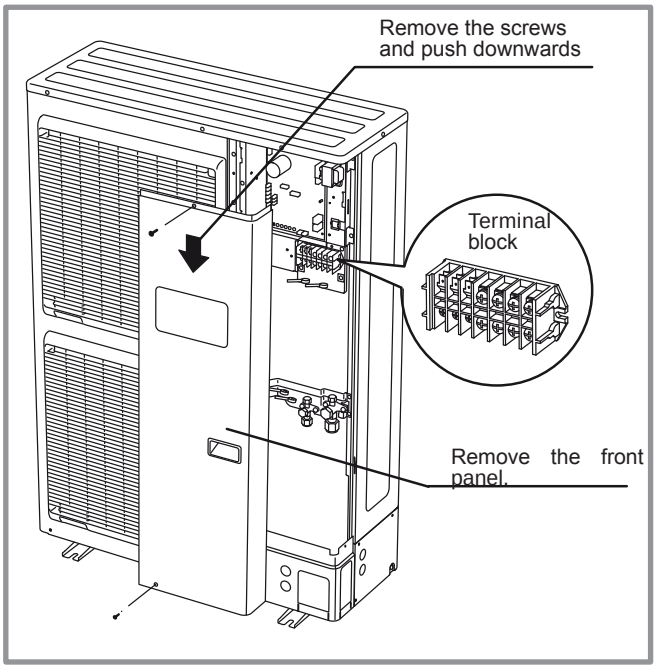


figure 39 - Access to the terminal block of the outdoor unit

- Make the connections in compliance with the diagram(s) (figure 45, page 31).

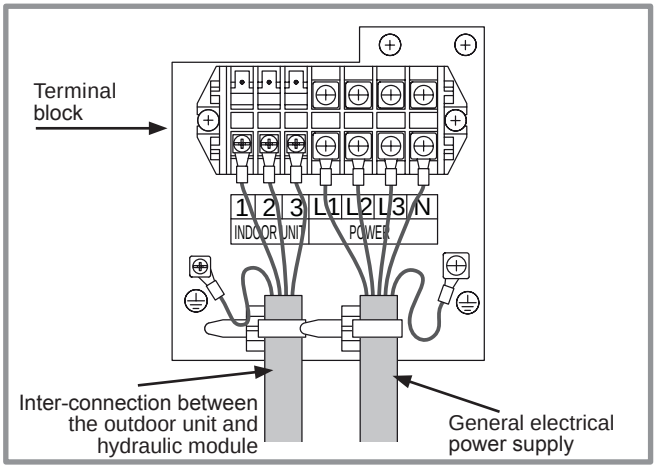

Terminal block
1 2 3 L1 L2 L3 N
INDOOR UNIT
POWER
Inter-connection between the outdoor unit and hydraulic module
General electrical power supply

figure 40 - Connections to the terminal block of the outdoor unit

- Use the cable clamps to avoid any accidental disconnection of the conductive wires.
- Obstruct the space at the cable inlet in the outdoor unit with the insulating plate.

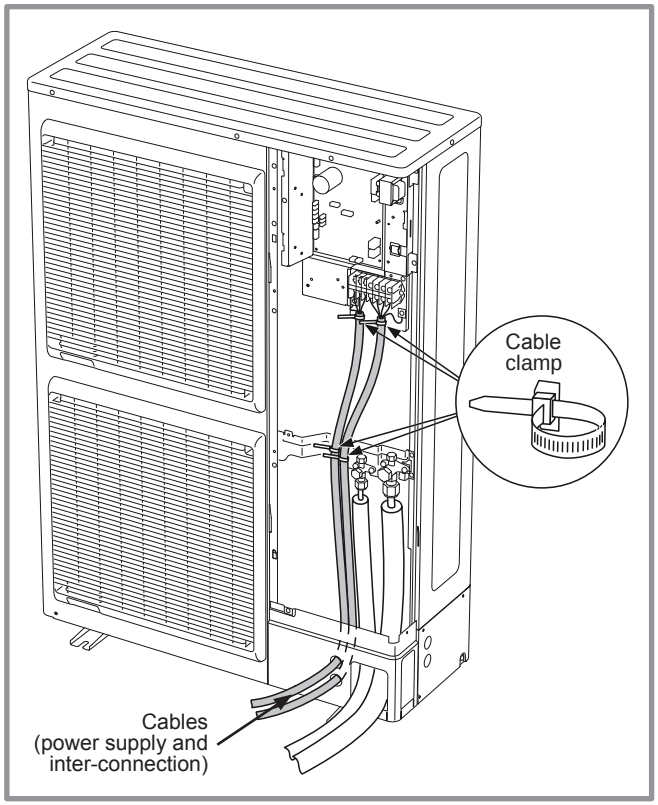


figure 41 - Finalising of the connection of the outdoor unit

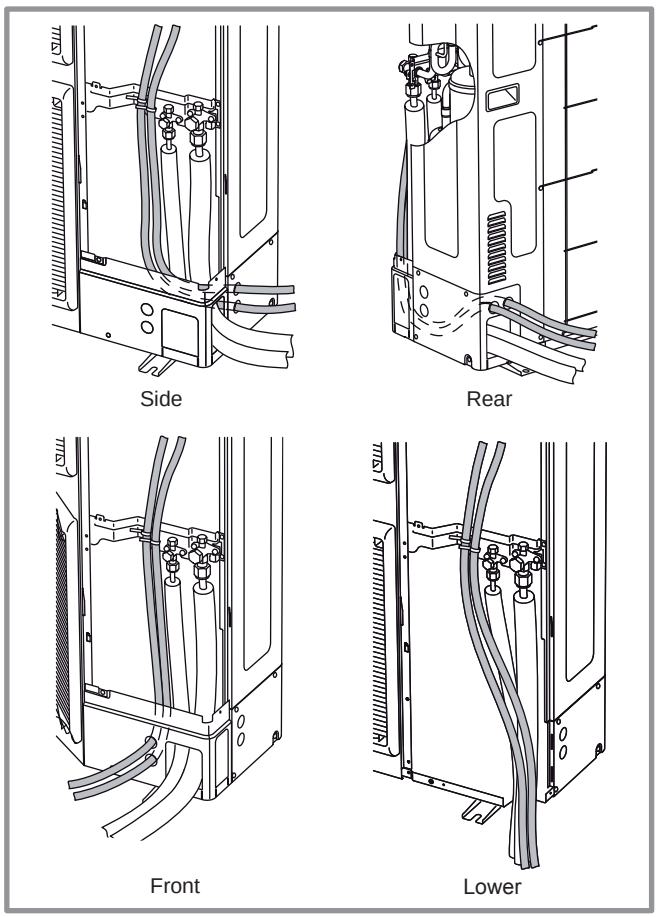


figure 42 - Ducts for the cables and refrigerating connections of the outdoor unit

2.11.7 Electrical connections on the hydraulic module side

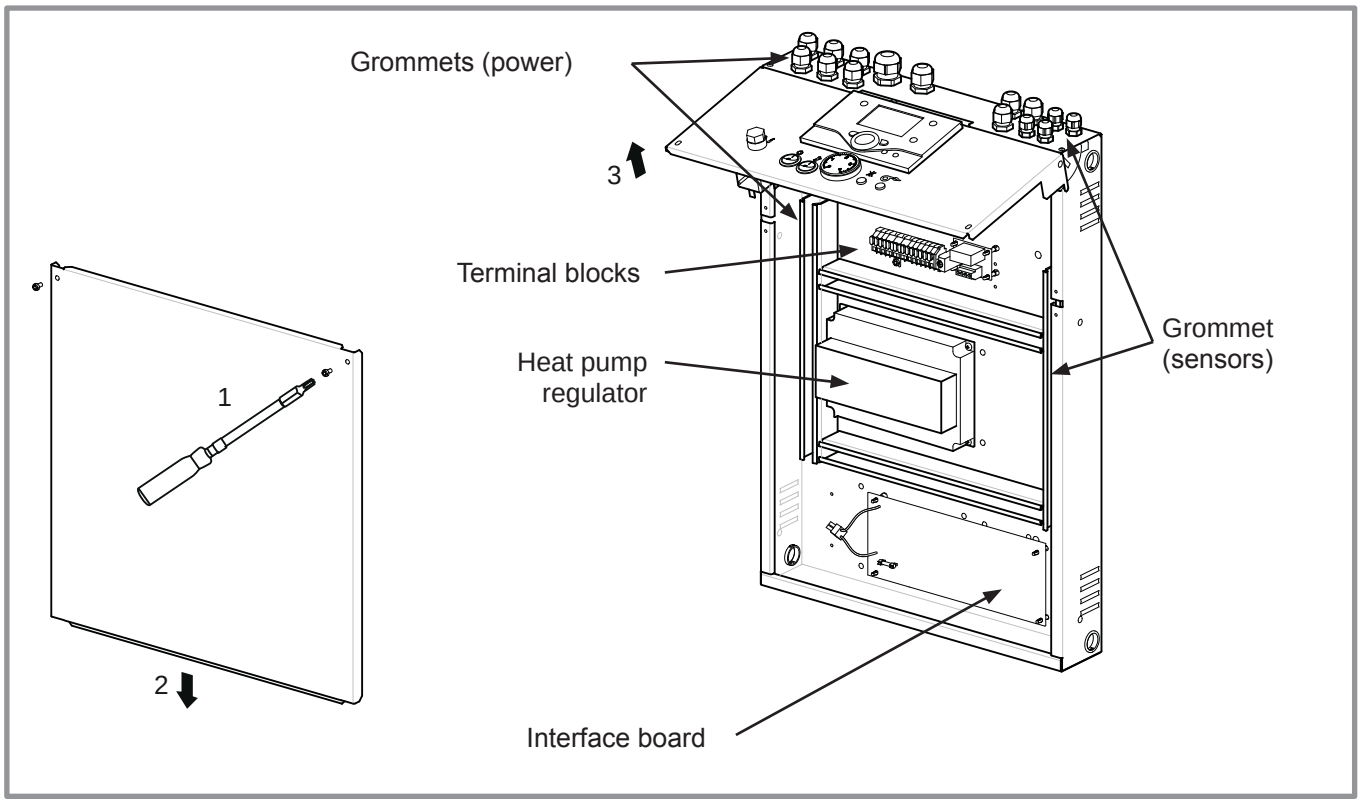


figure 43 - Access to the electrical cabinet and the hydraulic module and description

Access to the connector terminals

Use the bit supplied with the appliance (Torx T^{20}).

- Remove the front panel.
- (**1, 2**) Remove the cover of the housing (2 screws).
- (**3**) Tilt the control panel (2 screws).

Make the connections in compliance with the diagrams (figure 45 and figure 46).

Do not fit the sensor wires and the power supply wires in the same cable duct in order to avoid interferences due to the voltage surges in the power supply.

Ensure that all of the electrical cables are housed in the spaces provided.

• Inter-connection between the outdoor unit and the hydraulic module:

Respect the correspondence between the terminal blocks references of the hydraulic module and those of the outdoor unit when connecting the inter-connection cables.

An incorrect connection can cause the destruction of one of the units.

• Second heating circuit

- Refer to the instructions supplied with the 2nd circuit hydraulic kit.

• Contract with the energy supplier

It is possible to control the DHW operation of the heat pump with specific contracts, HP/HC (day/night).

- Connect the "energy supplier" contact to the EX5 input.
- Set the parameter (1620) to "Off peak tariff".
- 230 V on the EX5 input = "peak rate" information activated (basic setting/modification possible line 5989, Configuration menu).

During the peak rates the DHW operation is reduced, during the off peak rates the DHW operation is comfort.

• Load shedding or EJP (removal of peak days)

The purpose of load shedding is to reduce the electrical consumption when it is too high compared to the contract with the energy supplier.

- Connect the electricity meter contact to terminals 7 and 8.
- Check that the parameter 2920 is set to "locked".
- Check that the parameter 5987 is set to "working contact".

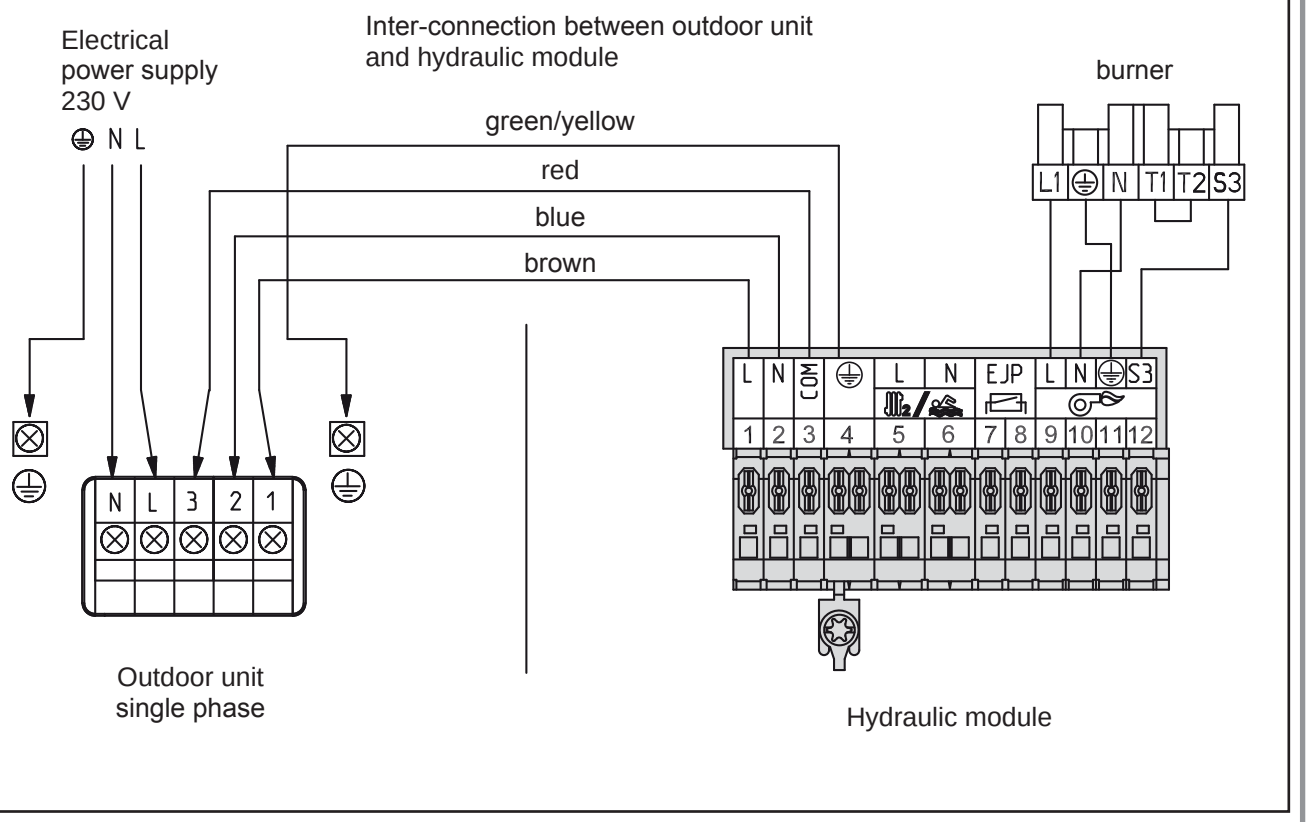
• Contact closed = heat pump stopped, boiler authorised

During the "peak tariff" days the heat pump will be stopped and solely the burner will provide the heating.

• If there is under-floor heating

- Connect the under-floor heating thermal safety device to the connector of the under-floor heating circulation pump (QX3: circuit 1, QX23: circuit 2).

☞ ***Single phase model***



☞ ***Three phase model***

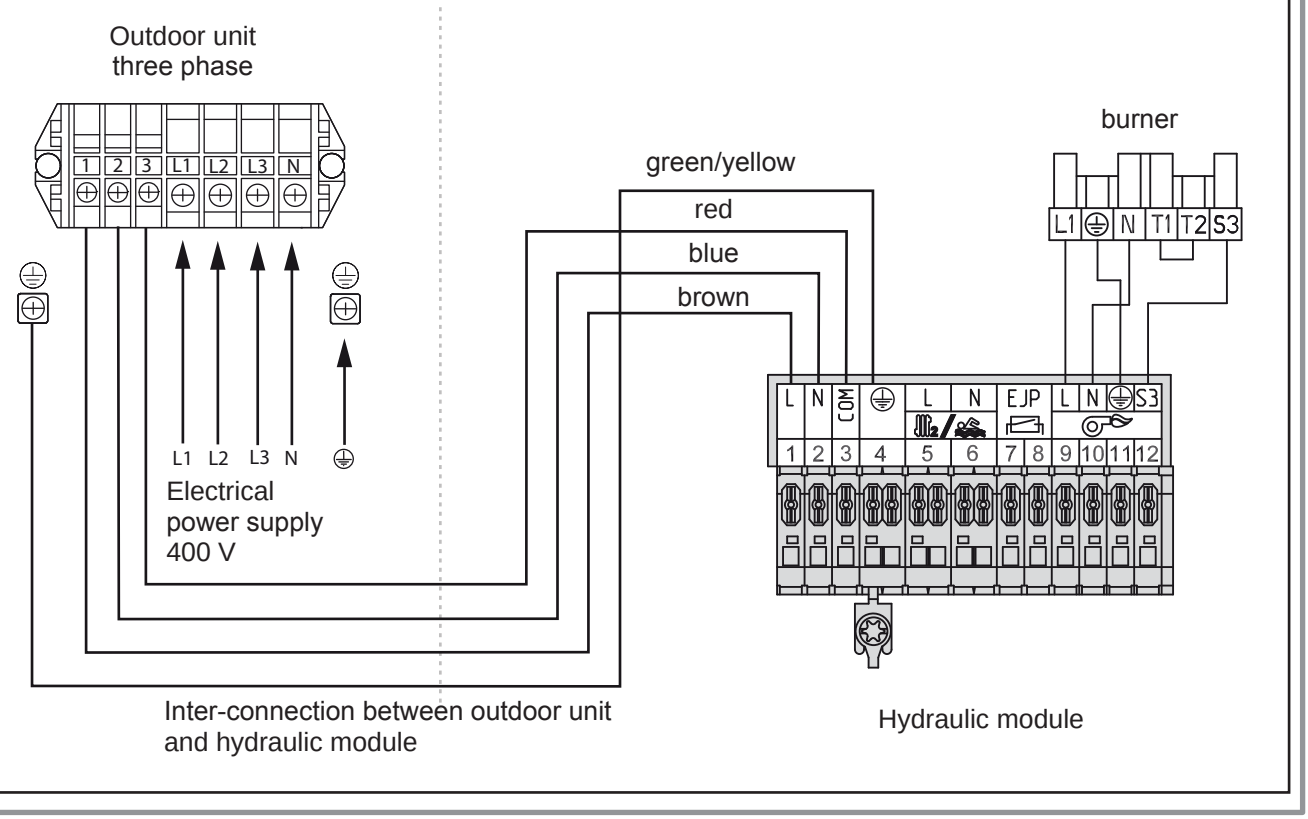


figure 44 - Connection to the terminal blocks and power relay

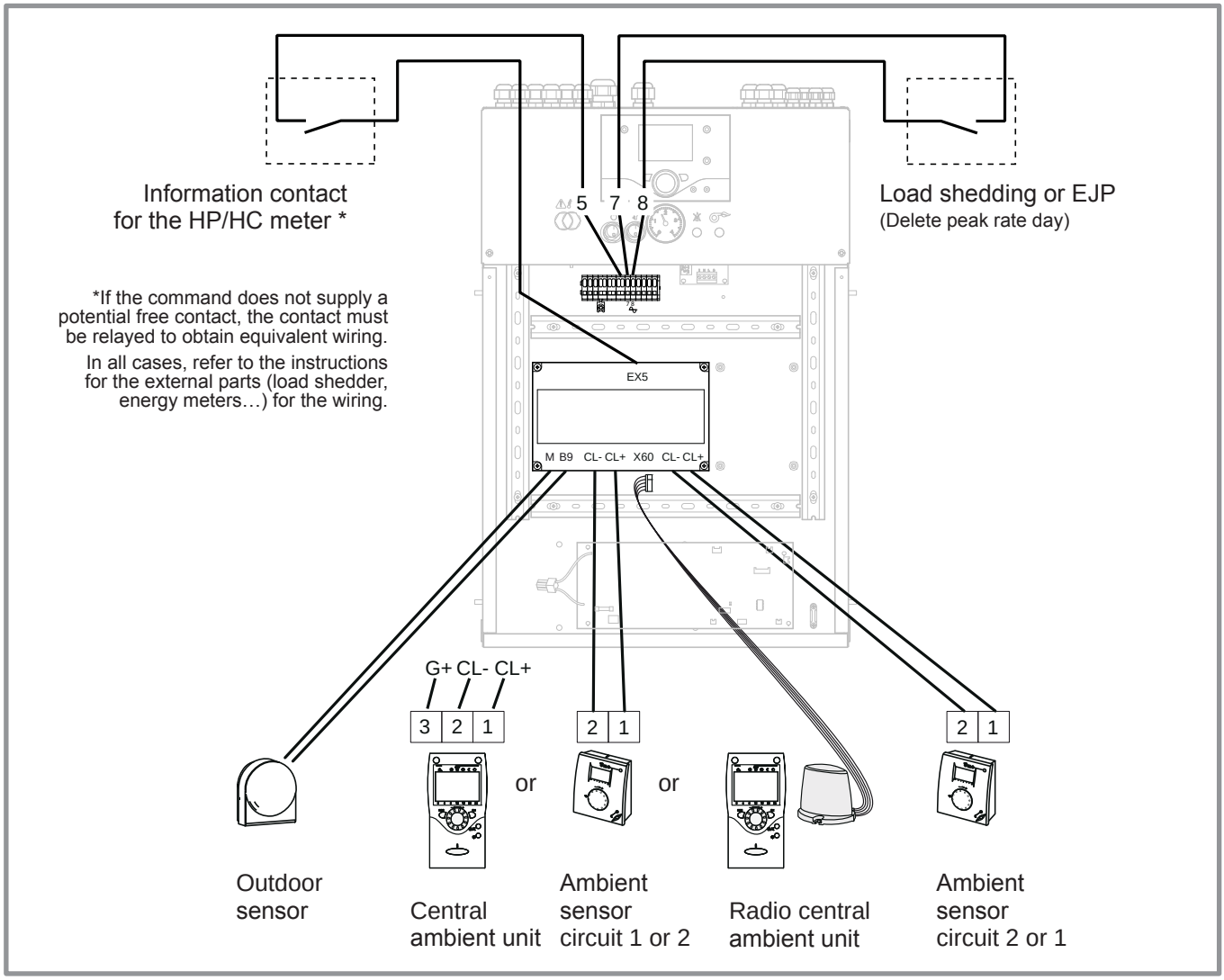

Information contact
for the HP/HC meter *
*If the command does not supply a potential free contact, the contact must be relayed to obtain equivalent wiring.
In all cases, refer to the instructions for the external parts (load shedder, energy meters…) for the wiring.
5 7 8
Load shedding or EJP
(Delete peak rate day)
EX5
M B9 CL- CL+ X60 CL- CL+
G+ CL- CL+
3 2 1
2 1
2 1
or
or
Outdoor sensor
Central ambient unit
Ambient sensor circuit 1 or 2
Radio central ambient unit
Ambient sensor circuit 2 or 1

figure 45 - Connections on the heat pump regulator (accessories and options)

2.12 Outdoor sensor

The Outdoor sensor is required for the correct operation of the heat pump.

Consult the assembly instructions on the packaging of the sensor.

Place the sensor on the front panel that is the worst exposed, in general the North or North west front panel.

Under no circumstances must it be exposed to the sun in the morning.

It is to be installed so that it is easily accessible but at least 2.5 m from the ground.

Avoid sources of heat such as chimneys, the tops of doors or windows, nearby extraction ducts, underneath balconies and porches, that would insulate the sensor from the variations in the temperature of the air outdoors.

- Connect the outdoor sensor to the terminals M and B9 of the heat pump regulation board (figure 46).

2.13 Ambient sensor and/or central ambient unit(radio)

The ambient sensor (or the central ambient unit) is optional.

Consult the assembly instructions on the packaging of the sensor.

The sensor must be installed in the living room area on a very uncluttered wall. It must be installed so as to be easily accessible.

Avoid sources of direct heat (chimney, television, cooker, sunlight) and areas exposed to draughts (ventilation, doors). Draughts due to the building usually cause cold air to enter via the electrical ducts. Seal the electrical ducts if there is a cold draught at the back of the ambient sensor.

- **Installation equipped with two ambient sensors (T55)**

- Connect each of the sensors to one of the terminals CL+ and CL- of the regulation board of the heat pump (figure 46) using the connector provided.

- **Installation equipped with an ambient sensor (T55) and a central ambient unit (T75)**

- Connect the sensor to one of the terminals CL+ and CL- of the regulation board de the heat pump (figure 46).
- Connect the central ambient unit to the other terminals CL+, CL- and the terminal G+.

- **Installation equipped with a radio central ambient unit (T78)**

Refer to the instructions supplied with the radio central ambient unit.

2.14 Verifications and commissioning

- Carry out the usual verifications of the burner and its energy power circuit.
- Check the turbulators are fitted correctly.
- Check that the electrical connections are tightened onto the connection terminals.
- Connect the appliance to the power supply and switch it on:

- Engage the main isolator switch of the installation.

  When first put into service (or in winter), to preheat the compressor, engage the main isolator switch of the installation (outdoor unit power supply) for several hours before the tests.

- Switch on the Start/Stop button of the heat pump.

  To ensure the correct operation of the appliance : Check that the phase-neutral polarity of the electrical power supply is respected.

When put into service and every time that the Start/Stop switch is switched off and then back on, the outdoor unit requires approximately 4 min. to start up even if the regulation has demanded heating.

The display may show error 370 when starting. This error code will disappear when the communication between the refrigerating unit and the hydraulic module is established (again).

During the initialisation phase of the regulator, all of the symbols are displayed, then the "Data, update", then "Heat pump status" is displayed.

- Make all of the specific settings for the regulation (configuration of the installation in particular):

- Press the OK button OK .

- Hold the button i in for 3s and select the access level "Putting into service" using the knob .

- Confirm with the OK button OK .
- Set the parameters of the regulation of the heat pump (consult the list of settings page 40).

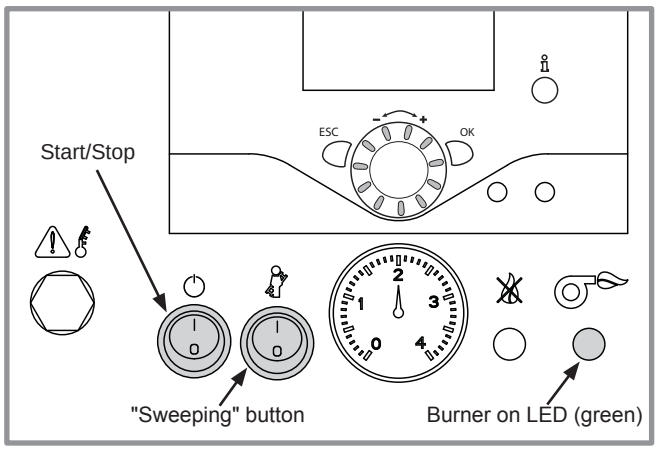


figure 46 - Control panel

☞ **If the installation is equipped with under-floor heating: It is essential to set the parameters 741 and/or 1041 (page 42 and/or page 44).**

When putting into service (or in the case of an error 10) the burner may start even if the instantaneous outdoor temperature is higher than the start temperature of the burner (parameter 3700 by default).

The regulation uses one mean initial outdoor temperature of 0°C and needs time to update this temperature.

To counter this situation, with the outdoor sensor correctly connected, reset the parameter 8703 (commissioning level, consumer diagnosis menu).

Once the machine is running, drain the hydraulic module again (2 litres of water).

2.15 Adjusting the burner

Refer to the instructions supplied with the burner.

Stella 4000 unit burner

Jet	*Pump pressure*	*Fuel flow rate, when burner is hot*
GPH and angle	bar	kg/h
0.6 gph - 60°E	15	2.30

2.15.1 Setting the electrodes

Refer to the instructions supplied with the burner.

2.15.2 Setting the combustion air

- The "sweeping" button (figure 47) authorises the operation of the burner for an hour.
- Create a heating request in order to start the burner.

To optimise the operation of the boiler, it is recommended to adapt the air setting of the burner to the conditions of the installation (CO_2 between 12 and 12.5% when hot, opacity coefficient = 0) by adjusting the two adjustment screws (see figure 48 and figure 49).

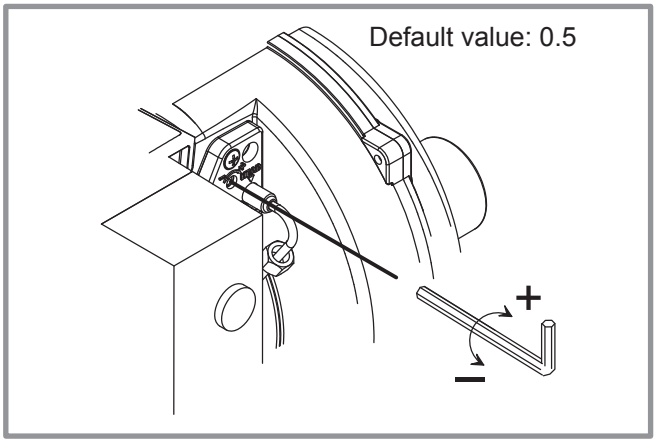


figure 47 - Setting the combustion head

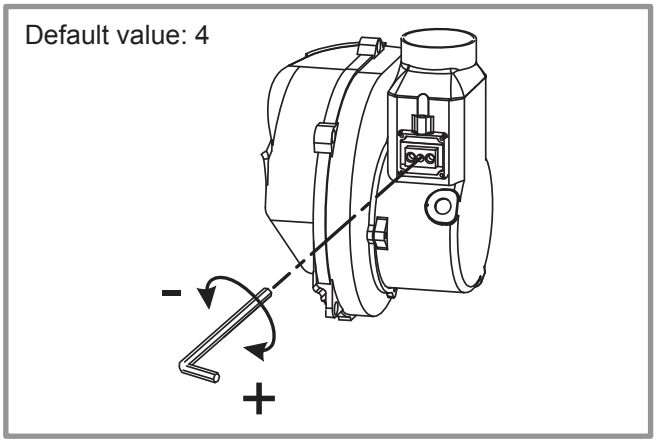


figure 48 - Setting the air damper

2.16 Configuration of the ambient sensor

T55 - To configure the ambient sensor and associate it to the adequate heating zone:

- Press for more than 3s the presence button (ref.13, figure 51, page 37). The ambient sensor displays RU and a figure flashes.
- Turn the knob to select the zone (1, 2).

If the installation is equipped with 2 ambient sensors, first connect a sensor and configure it in zone 2 then connect the other sensor that is configured by default in zone 1.

- Press the presence button, the ambient sensor displays P1 and a figure flashes. 1: Automatic storing; a correction of the value with the knob is adopted without any specific validation (timeout) or by pressing the operation button. 2: Save with confirmation; a correction of the value with the knob is only adopted after pressing the operation button.
- Press the presence button again, the ambient sensor displays P2 and a figure flashes.

0: OFF; all of the operating elements are triggered.

1: ON; the following operating elements are locked:

- Switching the operation mode of the heating circuit
- Adjusting the comfort value
- Changing the operating level

The ambient sensor displays OFF for 3s when a locked button is pressed.

2.17 Configuration of the (radio) central ambient unit

T75 - When putting into service, after a reset of around 3 minutes, the user language needs to be set:

- Press the OK button OK.
- Select the "user Interface" menu.
- Select the language. Select the language (English, Deutsch, **Français**, Italiano, Nederlands, Español, Português, Dansk).

T78 - Refer to the instructions supplied with the radio central ambient unit.

3 Regulation

3.1 The user interface and the central ambient unit (optional)

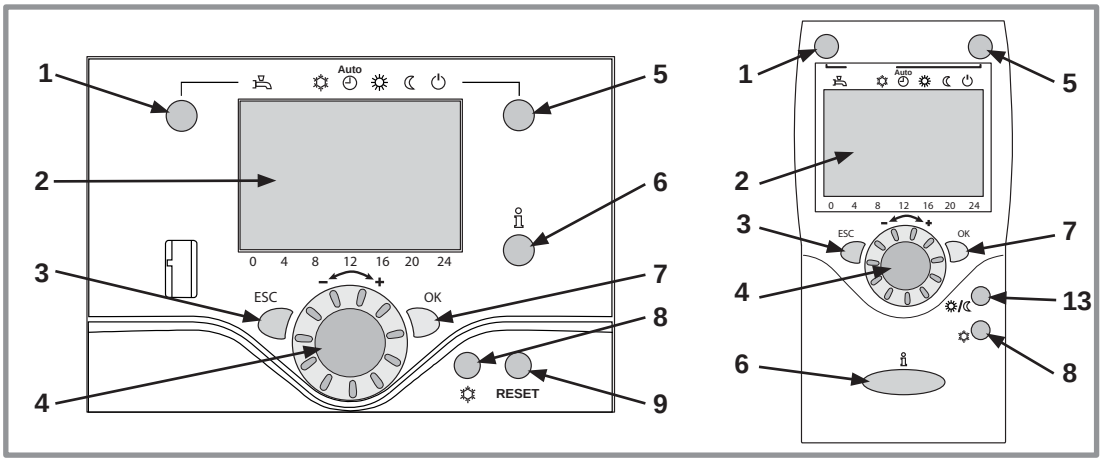


figure 49 -

Ref.	Functions	- Definitions of the functions
1	Selecting the DHW operation Start Stop	- **Start**: Production of DHW in function of the timer programme. - **Stop**: Production of the DHW stopped with antifreeze function of the domestic water active. - **Manual start button**: Press the DHW button for 3 s (switches from "reduced" to "comfort" until the DHW timer programme is switched again).
2	Digital display	- Check the operation, read the current temperature of the heating operation, or a possible fault . - View the settings.
3	"ESC" to exit	- Quit the menu
4	Navigation and settings	- Selection of menu - Setting the parameters - Setting the comfort temperature value.
5	Selecting the heating operation	- Heating in service in compliance with the heating programme (automatic switching of summer/winter). - Permanent comfort temperature. - Permanent reduced temperature. - "Stand-by" operation with antifreeze protection (provided that the electrical power supply of the heat pump is not interrupted).
6	Display information	- Miscellaneous information (see page 63). - Reading the error codes (see page 63). - Information on maintenance, special operation.
7	Validation "OK"	- Enter the menu selected. - Validate the parameter settings. - Validate the comfort temperature value setting.
8	Selecting the cooling mode	- (Not available for DHW model).
9	Reset (press for 3 seconds)	- Reset the parameters and cancel the error messages. **Do not use during normal operation.**

3.2 The ambient sensor (optional)

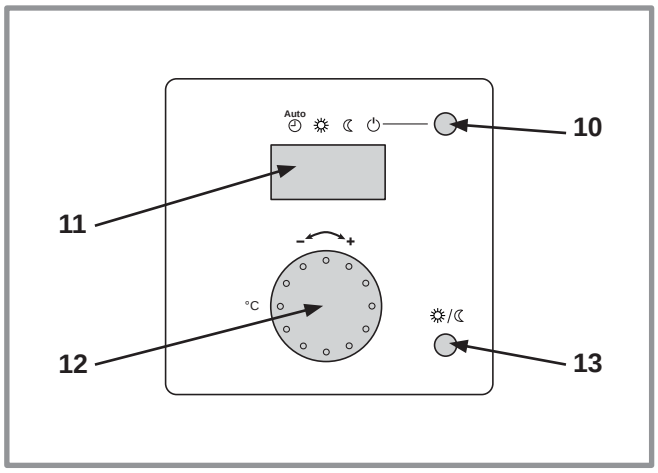


figure 50 - The ambient sensor (optional)

Ref.	Functions	- Definitions of the functions
10	Selecting the heating operation	- Auto Heating in service to the heating programme (automatic summer/winter switching). - ☼ Permanent comfort temperature. - ☾ Permanent reduced temperature. - ⏻ "Stand-by" operation with antifreeze protection (provided that the electrical power supply of the heat pump is not interrupted).
11	Display screen	- Check the operation, read the current temperature of the heating operation, or a possible fault 🔔.
12	Adjustment button	- Setting the comfort temperature value.
13	Presence button	- Switching comfort/reduced.

3.3 Water logic

The operation of the heat pump is controlled by the water logic.

The reference temperature of the heating circuit water is adjusted in function of the outdoor temperature.

If there are thermostatic valves fitted to the installation, they must be opened fully or set higher than the normal value of the ambient temperature.

3.3.1 Manual setting

During the installation, the water logic must be set in function of the heating transmitters and the insulation of the building.

The water logic graphs (figure 52) refer to a ambient value equal to 20°C.

The slope of the water logic graph (parameter 720) determines the impact of the variations of the outdoor temperature on the variations of the initial heating temperature.

Specific case: When the slope is greater than or equal to 2 and the outdoor temperature is above 2 °C, it is possible to feel uncomfortable in the home. In this case, the value of parameter 3700 may be increased.

The offset of the water logic (parameter 721) modifies the initial temperature of all the graphs, but does not modify the slope (figure 53).

The corrective actions if discomfort is experienced are listed in the table (figure 54).

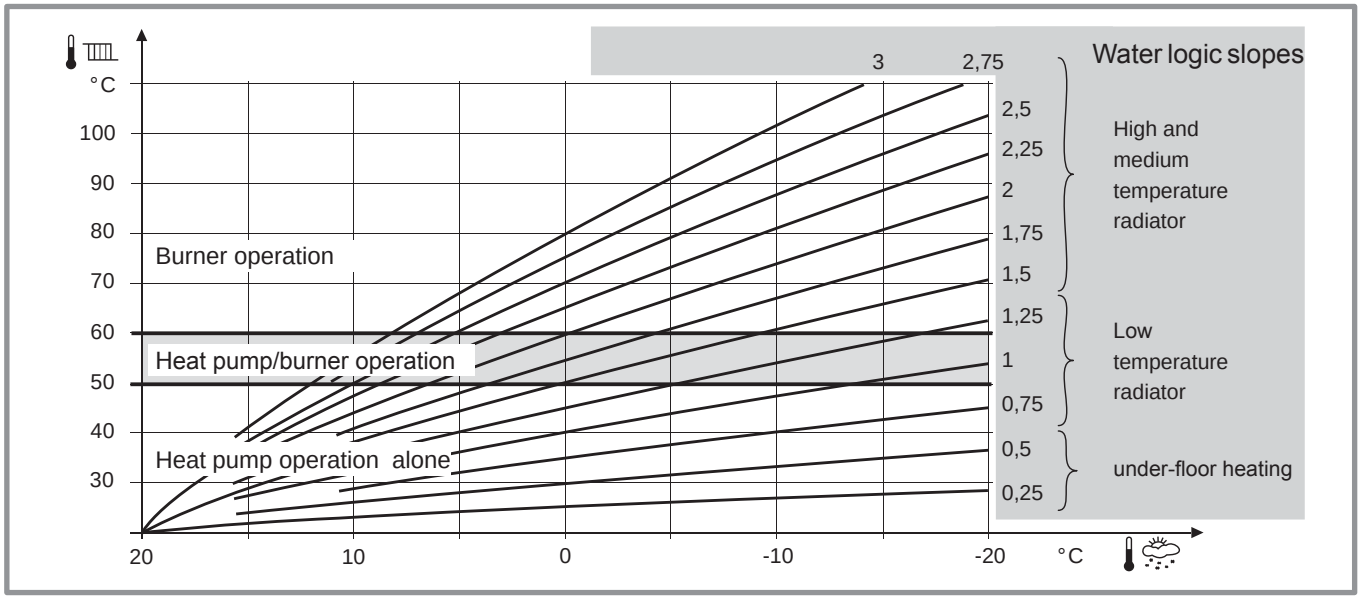


figure 51 - Slope of the heating curve (line 720)

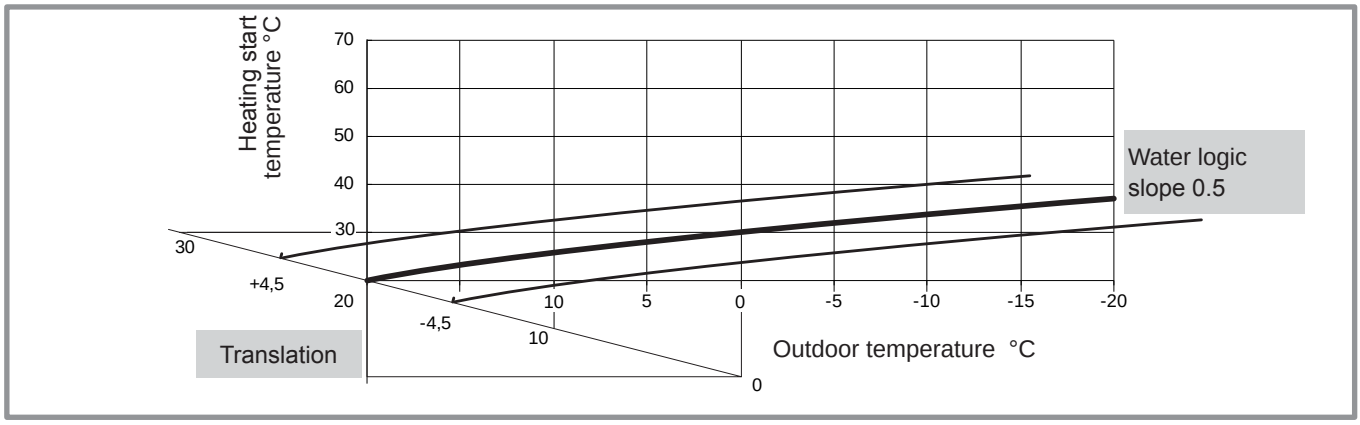


figure 52 - Translation of the heating curve (line 721)

Feelings...				Corrective actions on the water logic:	
...in mild weather		...in cold weather		Slope (line **720**)	Offset (line **721**)
Good	&	Good	→	No correction	No correction
Cold	&	Hot	→	−	+
Cold	&	Good	→	−	+
Cold	&	Cold	→	No correction	+
Good	&	Hot	→	−	No correction
Good	&	Cold	→	+	No correction
Hot	&	Hot	→	No correction	−
Hot	&	Good	→	+	−
Hot	&	Cold	→	+	−

figure 53 - Corrective actions in case of discomfort

3.4 Regulation parameters

3.4.1 General

Only the parameters accessible at the levels:

U - end user.

I - Commissioning

S - Specialist.

are described in this document.

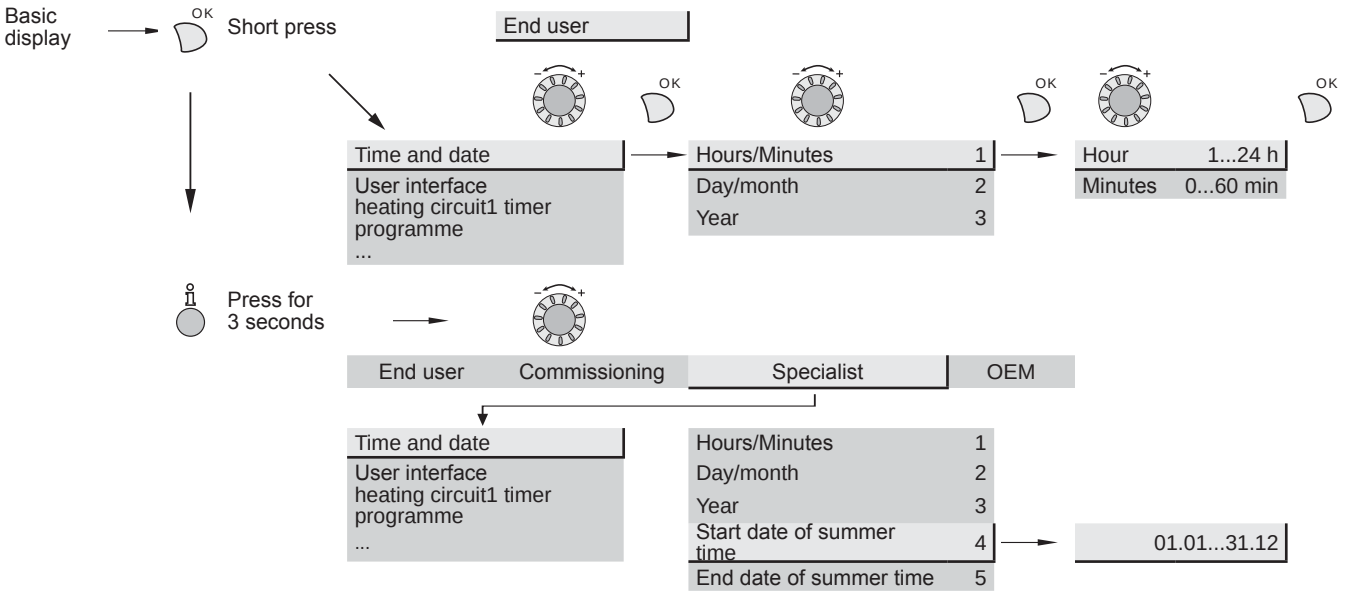
The access levels are defined in the 2nd column of the table by the letters **U**, **I** and **S**.

The OEM parameters are not described and require a manufacturer access code.

3.4.2 Setting the parameters

- Selecting the desired level.
- Scroll the list of menus.
- Selecting the desired menu.
- Scroll the function lines.
- Selecting the desired line.
- Adjusting the parameter.
- Validate the setting by pressing **OK**.
- To return to the menu, press **ESC**.

If no settings have been made for 8 minutes, the screen automatically returns to the basic display.



3.4.3 List of the function lines (settings, diagnosis, state)

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
Time and date					
1	**U**	Hours/minutes	00:00... 23:59	1	
2	**U**	day/month	01:01... 31.12	1	
3	**U**	Year	1900... 2099	1	
5	**S**	Start summer time (day/month)	01:01... 31.12	1	**25.03**
6	**S**	End of summer time (day/month)	01:01... 31.12	1	**25.10**
		The time change appears at 03h00 on the first Sunday after the date set.			
User interface					
20	**U**	Language	English, Français, Italiano, Nederlands...		**French**
22	**S**	Info	Temporary | Permanent		**Temporary**
26	**S**	Locking the operation	Stop | Start		**Stop**
27	**S**	Locking the programming	Stop | Start		**Stop**
28	**S**	Direct setting Save...	...automatic |...with confirmation		**...with confirmation**

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
44	**I**	Heating circuit2 operation (heating circuit2 command)	Common with heating circuit1, independent		**Common with heating circuit1**
		Common with heating circuit1, or independent This function permits the choice to be made if the ambient sensor (in option) has an action on the two zones or on a single zone.			
46	**I**	CCP operation (command of domestic system circulation pump, QX2 outlet) Common with heating circuit1 or independent (Not concerned)			**Common with heating circuit1**
70	**S**	Version of display unit software			
Timer programme for heating, circuit 1					
500	**U**	Pre-selection (day/week)	Mon-Sun Mon-Fri Sat-Sun Mon Tues…		**Mon-Sun**
501	**U**	1st phase (in service)	00:00... --:--	10 min	**06:00**
502	**U**	1st phase (not in service)	00:00... --:--	10 min	**22:00**
503	**U**	2nd phase (in service)	00:00... --:--	10 min	**--:--**
504	**U**	2nd phase (not in service)	00:00... --:--	10 min	**--:--**
505	**U**	3rd phase (in service)	00:00... --:--	10 min	**--:--**
506	**U**	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
516	**U**	Restore standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			
Timer programme for heating, circuit 2					
		If the installation has 2 heating circuits (only with the 2nd circuit kit option)			
520	**U**	Pre-selection (day/week)	Mon-Sun Mon-Fri Sat-Sun Mon Tues…		**Mon-Sun**
521	**U**	1st phase (in service)	00:00... --:--	10 min	**06:00**
522	**U**	1st phase (not in service)	00:00... --:--	10 min	**22:00**
523	**U**	2nd phase (in service)	00:00... --:--	10 min	**--:--**
524	**U**	2nd phase (not in service)	00:00... --:--	10 min	**--:--**
525	**U**	3rd phase (in service)	00:00... --:--	10 min	**--:--**
526	**U**	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
536	**U**	Restore standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			
Timer programme 4/DHWD					
560	**U**	Pre-selection (day/week)	Mon-Sun Mon-Fri Sat-Sun Mon Tues…		**Mon-Sun**
561	**U**	1st phase (in service)	00:00... --:--	10 min	**00:00**
562	**U**	1st phase (not in service)	00:00... --:--	10 min	**05:00**
563	**U**	2nd phase (in service)	00:00... --:--	10 min	**15:00**
564	**U**	2nd phase (not in service)	00:00... --:--	10 min	**18:00**
565	**U**	3rd phase (in service)	00:00... --:--	10 min	**--:--**
566	**U**	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
576	**U**	Restore standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			

Line		Function	Setting range or display	Setting increment	Basic setting
timer programme 5/Cooling					
		(Not available for DHW model).			
Holidays, circuit 1					
641	**U**	Pre-selection of the holiday period	Period 1 to 8		**Period 1**
642	**U**	Date of start of holidays (day/month).	01:01... 31.12	1	
643	**U**	Date of end of holidays (day/month).	01:01... 31.12	1	
648	**U**	Heating operation during the holidays	Antifreeze protection, reduced		**Antifreeze protection**
Holidays, circuit 2					
		If the installation has 2 heating circuits (only with the 2nd circuit kit option)			
651	**U**	Pre-selection of the holiday period	Period 1 to 8		**Period 1**
652	**U**	Date of start of holidays (day/month).	01:01... 31.12	1	
653	**U**	Date of end of holidays (day/month).	01:01... 31.12	1	
658	**U**	Heating operation during the holidays	Protection antifreeze, reduced		**Antifreeze protection**
Setting the heating, circuit 1					
710	**U**	Ambient comfort temperature value	Reduced temperature … max. comfort value	0.5°C	**20°C**
712	**U**	Reduced ambient comfort temperature value	Antifreeze temperature … comfort temperature	0.5°C	**18°C**
714	**U**	Ambient "antifreeze" temperature value	4°C… reduced temperature	0.5°C	**8°C**
716	**S**	Maximum comfort value	20°C... 35°C	1°C	**28°C**
720	**I**	Slope of the heating curve (see figure 51)	0.1... 4	0.02	**0.5**
721	**I**	Translation of the heating curve	-4.5°C... 4.5°C	0.5°C	**0**
726	**I**	Adaptation of the heating curve	Stop | Start		**Stop**
		Warning! Do not modify, leave on Stop.			
730	**I**	Summer/winter heating limit	8°C... 30°C	0.5°C	**18°C**
		When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy). In summer operation, the display shows "Eco". This function is only active in automatic operation.			
732	**S**	Daily heating limit	-10°C... 10°C	1°C	**-3°C**
		This function permits, between seasons, to deviate partially from the automatic switching between summer/winter. If the value is increased, the switch to summer operation is delayed. If the value is reduced, the switch to summer operation is brought forward. This function is only active in automatic operation.			
740	**S**	Min. start value (for fan coil unit)	8... 95°C	1°C	**8°C**
741	**S**	Max. start value	8... 95°C	1°C	**80°C**
		under-floor heating= 50°C **important remark:** The maximum limit is not a safety function as that required for under-floor heating.			
750	**S**	Influence of the ambient temperature	1%... 100%	1%	**20%**
		If the installation is equipped with an ambient sensor: This function allows the influence of the ambient temperature on the regulation to be chosen. If no value is entered, the regulation is via the water logic. If the parameter is set to 100%, the regulation is only made using the ambient temperature.			
790	**S**	Maximum optimisation when started	0... 360 min	10 min	**120 min**
		(advance start to reach the comfort value).			

Line		Function	Setting range or display	Setting increment	Basic setting
791	S	Maximum optimisation when stopped	0... 360 min	10 min	**120 min**
		(advance Stop to switch from comfort to reduced)			
800	S	Start increasing the reduced operation	-30... 10°C	1°C	**--**
801	S	End of increase in reduced operation	-30... 10°C	1°C	**-5°C**
830	S	Raising of mixing valve	0... 50°C	1°C	**0**
834	S	Servomotor travel time	30... 873 s	1 s	**240 s**
850	I	Control of floor drying (figure 55)			**Stop**
		- Stop = advanced stoppage of the programme running, programme not active - Functional heating - Heating ready for occupation - Functional heating + heating ready - Heating ready + functional heating - Manual The manual mode allows the drying of the floor to be programmed. The function ends automatically after 25 days.			
851	I	Manual floor drying value (if line 850 = manual)	0... 95°C	1°C	**25°C**
		This function allows the customised floor drying temperature to be set. This temperature remains fixed. The floor drying programme stops automatically after 25 days of operation.			
856	I	Current drying day	0... 32		
857	I	Drying days completed	0... 32		
900	S	Switching of operation	None, Protection mode, Reduced, Comfort, Automatic	1	**Protection mode**
		Operating mode at the end of floor drying.			

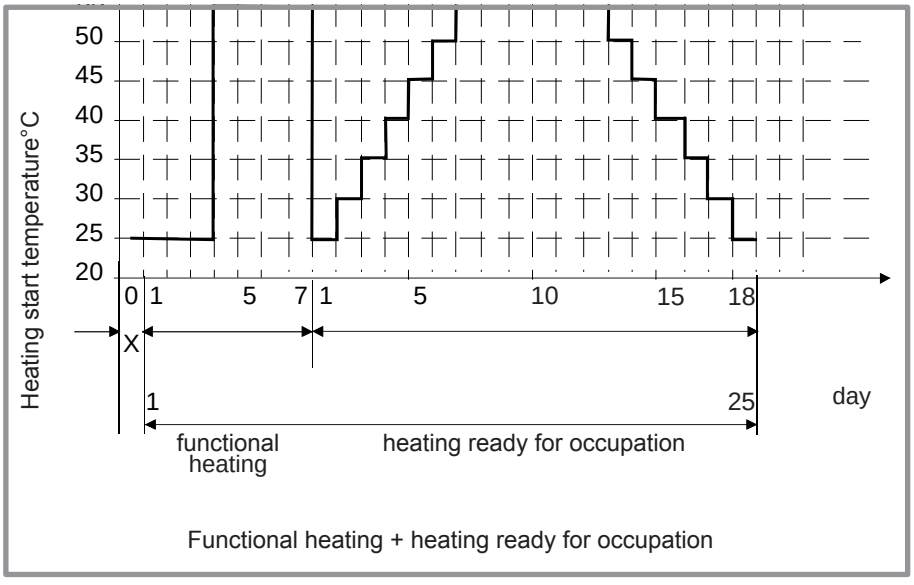


figure 54 - Diagram of the floor drying programmes

☞ **Respect the standards and values of the building constructor! Correct operation of this function is only possible with a correct installation (hydraulic, electricity and settings)! The function may be interrupted earlier by setting to "Stop".**

Line		Function	Setting range or display	Setting increment	Basic setting
Setting the heating, circuit 2					
		If the installation has 2 heating circuits (only with the 2nd circuit kit option)			
1010	**U**	Ambient comfort temperature value	Reduced temperature … max. comfort value	0.5°C	**20°C**
1012	**U**	Reduced ambient comfort temperature value	Antifreeze temperature … comfort temperature	0.5°C	**18°C**
1014	**U**	Ambient "antifreeze" temperature value	4°C… reduced temperature	0.5°C	**8°C**
1016	**S**	Maximum comfort value	20... 35°C	1°C	**28°C**
1020	**I**	Slope of the heating curve (see figure 51)	0.1... 4	0.02	**0.5**
1021	**I**	Translation of the heating curve	-4.5... 4.5°C	0.5°C	**0**
1026	**S**	Adaptation of the heating curve	Stop/Start		**Stop**
		Warning! Do not modify, leave on Stop.			
1030	**I**	Summer/winter heating limit	8... 30°C	0.5°C	**18°C**
		When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy). In summer operation, the display shows "Eco". This function is only active in automatic operation.			
1032	**S**	Daily heating limit	-10... 10°C	1°C	**-3°C**
		This function permits, between seasons, to deviate partially from the automatic switching between summer/winter. If the value is increased, the switch to summer operation is delayed. If the value is reduced, the switch to summer operation is brought forward. This function is only active in automatic operation.			
1040	**S**	Min. start value (for fan coil unit)	8... 95°C	1°C	**8°C**
1041	**S**	Max. start value	8... 95°C	1°C	**80°C**
.		under-floor heating= 50°C **important remark:** The maximum limit is not a safety function as that required for under-floor heating.			
1050	**S**	Influence of the ambient temperature	1%... 100%	1%	**20%**
		If the installation is equipped with an ambient sensor: This function allows the influence of the ambient temperature on the regulation to be chosen. If no value is entered, the regulation is via the water logic. If the parameter is set to 100%, the regulation is only made using the ambient temperature.			
1090	**S**	Maximum optimisation when started	0... 360 min	10 min	**0**
1091	**S**	Maximum optimisation when stopped	0... 360 min	10 min	**0**
1100	**S**	Start increasing the reduced operation	-30... 10°C, --°C	1°C	**--**
1101	**S**	end of increase in reduced operation	-30... 10°C, --°C	1°C	**-5°C**
1130	**S**	Raising of mixing valve	0... 50°C	1°C	**0**
1134	**S**	Servomotor travel time	30... 873 s	1 s	**240 s**
1150	**I**	Control of floor drying (figure 55) - Stop = advanced stoppage of the programme running, programme not active - Functional heating - Heating ready for occupation - Functional heating + heating ready - Heating ready for occupation + functional heating - Manual - The manual mode allows the drying of the floor to be programmed. The function ends automatically after 25 days.			**Stop**
1151	**I**	Manual floor drying value (if line 1150 = manual)	0... 95°C	1°C	**25°C**
		This function allows the customised floor drying temperature to be set. This temperature remains fixed. The floor drying programme stops automatically after 25 days of operation.			
1156	**I**	Current drying day	0... 32		
1157	**I**	Drying days completed	0... 32		

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
1200	**S**	Switching of operation	None, Protection mode, Reduced, Comfort, Automatic		**Protection mode**
		Operating mode at the end of floor drying.			
Setting the DHW (domestic hot water)					
1610	**U**	DHW comfort temperature value	Reduced value (defined in line 1612) … 65°C	1	**65°C**
		To reach this value, the boiler is used.			
1612	**U**	DHW reduced temperature value	8°C... comfort value (defined in line 1610)	1	**40°C**
1620	**I**	Liberation of the DHW load	24h/day Heating circuit timer prog. Timer programme 4/DHW Off peak rates tariff (THC) Timer prog. 4/DHW and THC		**Timer programme 4/DHW**
		24h/day: The DHW temperature is maintained permanently at the DHW comfort value.			
		Heating circuit timer prog.: The DHW production follows the timer programming of the ambient temperature (with start advanced by 1 hour).			
		Timer programme 4/DHW: The DHW programme is independent from the heating circuit programme.			
		Off peak rates tariff (THC*): The DHW value follows the electrical tariff signal (HP = reduced; HC = comfort).			
		Timer prog. 4/DHW and THC*: The DHW value follows the DHW timer programme **and** the electrical tariff signal (reduced DHW programme + HP = reduced; the rest of the time = comfort).			
		***- Connect the "energy supplier" contact to the EX5 input. (see § figure 46, page 32). In the case of a HP/HC contract (day/night), the DHW value is controlled by the energy supplier tariff.			
1640	**I**	Anti-legionnella function	Stop Periodic (in compliance with line 1641) fixed week day (in compliance with line 1642)		**Stop**
1641	**I**	Frequency of anti-legionella cycle	1 to 7	1 day	**7**
1642	**I**	Day of anti-legionella cycle operation	Mon, Tues,.. Sun		**Saturday**
1644	**I**	Time of anti-legionella cycle operation	--:--, 00:00... 23:50		**--:--**
		If no value has been entered, no anti-legionella cycle will be run.			
1645	**I**	Anti-legionella cycle temperature value	55°C... 95°C		**65°C**
1646	**I**	Duration of anti-legionella cycle	--:--, 10 min... 360 min		**30 min**
1647	**I**	Operation of anti-legionella circulation pump	Start... Stop		**Start**
1660	**I**	Liberation of domestic circulation pump **	Timer programme 3/CCP Liberation of DHW Timer programme 4/DHW		**Liberation of DHW**
		****Not available with hybrid duo models.**			
Swimming pool (only displayed with the swimming pool kit option)					
2056	**U**	Generator ref. heating value	8... 35°C		**22°C**
Heat pump					
2843	**S**	Duration of compr min. stop.	0... 60 min	1 min	**20 min**
2844	**S**	Max. temp. of thermodynamic operation	8... 100°C	1°C	**80°C**
2862	**S**	Time speed 2 blocked	0... 40 min	1 min	**5 min**
2873	**S**	Compress. modul. operation time	10... 240 s	1 s	**240 s**
2882	**S**	Complete liberation of electrical back up No electrical back up so not used with hybrid model	0... 500°Cmin	1°Cmin	**100°Cmin**
2884	**S**	Electrical liberation - start below outdoor temperature No electrical back up so not used with hybrid model	-30... 30°C		**2°C**
2886	**S**	Compensation of heat deficit	Stop, Start, Only for drying operation		**Stop**

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
2910	**S**	Liberation dependent on outdoor T°	-30... 30°C	1°C	**--**
2920	**S**	In case of EJP blocking signal (EX4)	Locked (Blocked while waiting)... Liberated		Blocked while waiting...
		Liberated: Heat pump = start _ boiler = start. **Locked (Blocked while waiting).**: Heat pump = stop _ boiler = start.			
Additional generator (relieves boiler)					
3700	**S**	Liberation below outdoor T° (outdoor temperature)	--, -50... 50°C	0.5°C	**2°C**
3705	**S**	Timer stopped	0... 120 min	1 min	**20 min**
3720	**S**	Complete liberation to relieve boiler	0... 120°C. min	1°C. min	**50°**C. min
3723	**S**	Generator blockage time	1... 120 min	1 min	**10 min**
DHW tank					
5020	**S**	Raising of initial ref. value	0... 30°C	1°C	**18°C**
5024	**S**	Switching differential	0... 20°C	1°C	**7°C**
5030	**S**	Limiting load duration	10... 600 min	10 min	**90 min**
5060	**S**	Electrical resistor operation	Replacement, Summer, all the time, Cooling operation		Replacement
5061	**S**	Liberation of electrical resistor	24h/day, Liberation of DHW, Timer programme 4/DHW		**Liberation of DHW**
Configuration of installation					
5700	**I**	Pre-settings	1,2,3,... 14	1	**13**
		This command permits one of the 2 pre-selected installation configurations to be selected (the hydraulic diagrams of the various configurations are described in the paragraph “Installation configurations”). - Pre-settings 1 to 12: Do not use with alféa hybrid duo heat pump. Reserved for alféa S or alféa duo heat pumps. - Pre-setting 13: 1 heating circuit. - Pre-setting 14: 2 heating circuits.			
5711	**S**	Cooling circuit 1 (Not available with DHW model).	Stop, system 4 tubes, 2 tube system		**Stop**
5870	**S**	Combined DHW tank	No, Yes		**No**
5987	**S**	Direction of action input EX4	Rest contact Work contact		**Operation contact**
		☞ **it is essential that this parameter is set to "Work contact".**			
5989	**S**	Direction of action input EX5	Rest contact Operation contact		**Rest contact**
6046	**I**	H2 input function 1: Switching of heating circuit + DHW operation. 2: Switching of heating circuit operation. 3: Switching of heating circuit1 operation. 4: Switching of heating circuit2 operation. 6: Error/alarm message. 9: Monitoring of dew point. 16: Liberation of swimming pool.	1... 16	1	**9**
6047	**I**	Direction of H2 contact action	Rest contact, Work contact		**Work contact**
6048	**S**	H2 contact function value	0... 130°C		**45°**C
6100	**S**	Correction of outdoor temperature sensor	-3... 3°C	0.1°C	**0°C**
6120	**S**	Antifreeze mode of the installation	Start, Stop		**Start**
6205	**S**	Re-initialise parameters	No, Yes		**No**
6220	**S**	Software version (RVS)	0... 99		

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
Error					
6711	**U**	Reset heat pump	No, Yes		**No**
6740	**S**	Initial alarm T° heating circuit1	--, 10... 240 min	10 min	**--**
6741	**S**	Initial alarm T° heating circuit2	--, 10... 240 min	10 min	**--**
6745	**S**	DHW load alarm	--, 1... 48 h	1 h	**--**
6746	**S**	Initial cold alarm T° 1	--, 10... 240 min	10 min	**--**
6800	**S**	History 1	Date, time, error code		
6802	**S**	History 2	Date, time, error code		
6804	**S**	History 3	Date, time, error code		
6806	**S**	History 4	Date, time, error code		
6808	**S**	History 5	Date, time, error code		
6810	**S**	History 6	Date, time, error code		
6812	**S**	History 7	Date, time, error code		
6814	**S**	History 8	Date, time, error code		
6816	**S**	History 9	Date, time, error code		
6818	**S**	History 10	Date, time, error code		
Maintenance/Special operation					
7070	**S**	Time interval for the maintenance of the heat pump	--, 1... 240	1 month	**--**
7071	**S**	Operating time of the heat pump since last maintenance. Reset? no, yes	0... 240	1 month	**0**
7072	**S**	Max. number of start up operations of the compressor authorised per hour of operation.	--, 0.1... 12	0.1	**--**
7073	**S**	Mean number of compressor start up operations per hour of operation, over the last 6 weeks. Reset? no, yes	0... 12		**0**
7076	**S**	Maximum deviation condens/week	--, 1... 250	1	**--**
7077	**S**	Maximum current deviation condens/week. Reset? no, yes	0... 250		**0**
7078	**S**	Minimum deviation condens/week	--, 1... 250	1	**---**
7079	**S**	Minimum current deviation condens/week. Reset? no, yes	0... 250		**0**
7090	**S**	DHW tank period	--, 1... 240	1 month	**---**
7091	**S**	DHW tank since maintenance. Reset? no, yes	0... 240		**0**
7141	**U**	Emergency operation	Stop, Start		**Stop**
		Stop: The heat pump does not use the boiler when there is a fault (error 370). Start: The heat pump uses the boiler when there is a fault (error 370). In the "Start" position the energy bill may be high if the error is not resolved.			
7142	**S**	Type of emergency back up operation	Manual, Automatic		**Manual**
		Manual: The emergency operation is not activated when there is a fault (emergency operation = Stop). Start: The emergency operation is activated automatically when there is a fault (emergency operation = start). In the "Automatic" position, the energy bill may be high if the error is not detected and resolved.			
7150	**I**	Simulation of outdoor temperature	---, -50... 50°C	0.5	**--**
7181	**I**	Telephone of manager 1	0... 255		
7183	**I**	Telephone of manager 2	0... 255		

Line		Function	Setting range or display	Setting increment	Basic setting
Test of inputs/outputs					
7700	I	Relay test			**No test**
		This test consists of commanding the regulator relays one by one and checking the outputs. This permits a check that the relays are operating and that the wiring is correct (for this, check that each appliance is operating on the installation). **(0) No test**, **(1) Everything is stopped**, **(2) Relay output QX23 module 1:** Swimming pool circulation pump, **(3) Relay output QX21 module 1:** not used, **(4) Relay output QX22 module 1:** not used, **(5) Relay output QX1:** Open mixing valve of circuit 1, **(6) Relay output QX2:** Close mixing valve circuit 1, **(7) Relay output QX3:** Heating circuit 1 circulation pump, **(8) Relay output QX4:** DHW circulation pump, **(9) Relay output QX5:** not used, **(10) Relay output QX6:** Start burner, **(11) Relay output QX23 module 2:** Heating circuit 2 circulation pump or swimming pool circulation pump, **(12) Relay output QX21 module 2:** Open mixing valve circuit 2, **(13) Relay output QX22 module 2:** Close mixing valve circuit 2, **(14) Relay output QX7:** Not used.			
		The display shows the "key" symbol. By pressing the Info button, "error 368" is displayed. **Warning! During the test, the component tested is electrically powered.**			
7710	I	Test on output Ux	--, 0... 100%	1	**--**
7711	I	Voltage value Ux	0... 10 Volt		**0**
7720	I	Test of digital outputs	0 = No test 1 = Everything is stopped 2 = Digital output DO1 3 = Digital output DO2		**No test**
7721	I	Digital output DO1	Cooling operation, Heating operation		**Heating operation**
7722	I	Digital output DO2	Stop, Start		**Stop**
7730	I	Outdoor temperature (B9)	-50... 50°C		**0**
7820	I	Temperature sensor BX1	-28... 350°C		**0**
7823	I	Temperature sensor BX4	-28... 350°C		**0**
7824	I	Temperature sensor BX5	-28... 350°C		**0**
7830	I	Temperature sensor BX21 module 1	-28... 350°C		**0**
7831	I	Temperature sensor BX22 module 1	-28... 350°C		**0**
7832	I	Temperature sensor BX21 module 2	-28... 350°C		**0**
7833	I	Temperature sensor BX22 module 2	-28... 350°C		**0**
7841	I	State of contact H1	Open, closed		**Open**
7846	I	State of contact H2	Open, closed		**Open**
7855	I	State of contact H3	Open, closed		**Open**
7914	I	Input Ex4	0, 230 V		**0**
7915	I	Input Ex5	0, 230 V		**0**
7916	I	Input Ex6	0, 230 V		**0**
State					
8000	I	State of heating circuit 1			**0**
8001	I	State of heating circuit 2			**0**
8003	I	State of DHW circuit			**0**
8004	I	State of cooling circuit 1			**0**
8006	I	State of heat pump			**0**
8011	I	State of swimming pool circuit			**0**
8022	I	State of additional generator			**0**
8050	I	History 1	Date, time, state code		
8052	I	History 2	Date, time, state code		
8054	I	History 3	Date, time, state code		

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
8056	**I**	History 4	Date, time, state code		
8058	**I**	History 5	Date, time, state code		
8060	**I**	History 6	Date, time, state code		
8062	**I**	History 7	Date, time, state code		
8064	**I**	History 8	Date, time, state code		
8066	**I**	History 9	Date, time, state code		
8068	**I**	History 10	Date, time, state code		
Diagnosis of generator					
8402	**I**	Electrical resistor 1 start	Stop, Start		**Stop**
8403	**I**	Electrical resistor 2 start	Stop, Start		**Stop**
8406	**I**	Condenser pump	Stop, Start		**Stop**
8410	**U**	Heat pump return temperature	0... 140°C		
		Heat pump ref. value (return)			
8412	**U**	Heat pump start temperature	0... 140°C		
		Heat pump ref. value (start)			
8413	**U**	Compressor modulation	0... 100%		
8425	**I**	Condenser temperature deviation	-50... 140°C		
8454	**S**	Duration of heat pump locking Reset? no, yes	0... 2730 h		
8455	**S**	Heat pump counter locking Reset? no, yes	0... 65535		
8456	**S**	Hours of operation of electrical start Reset? no, yes	0... 2730 h		
8457	**S**	Counter for n° of electrical starts Reset? no, yes	0... 65535		
Consumer diagnostis					
8700	**U**	Outdoor temperature	-50... 50°C		
8701	**U**	Minimum outdoor temperature Reset? no, yes	-50... 50°C		
8702	**U**	Maximum outdoor temperature Reset? no, yes	-50... 50°C		
8703	**I**	Attenuated outdoor temperature Reset? no, yes	-50... 50°C		
		This is the mean outdoor temperature over a 24 h period. This value is used for automatic summer/winter switching (line 730).			
8704	**I**	Mixed outdoor temperature	-50... 50°C		
		The mixed outdoor temperature is a combination of the "current outdoor temperature" and the "mean outdoor temperature" calculated by the regulator. This value is used to calculate the start temperature.			
8730	**I**	Heating circuit1 circulation pump	Stop, Start		**Stop**
8731	**I**	Heating circuit1 mixing valve open	Stop, Start		**Stop**
8732	**I**	heating circuit1 mixing valve closed	Stop, Start		**Stop**
8740	**U**	Ambient temperature 1	0... 50°C		**20°C**
		Ambient temperature value 1			**20°C**
8743	**U**	Start temperature 1	0... 140°C		**50°C**
		Start temperature ref. value 1			**50°C**

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
8756	**U**	Cooling start temperature 1	0... 140°C		**0**
		Cooling start temperature ref. value 1			**0**
8760	**I**	Heating circuit2 pump	Stop, Start		**Stop**
8761	**I**	Heating circuit2 mixing valve open	Stop, Start		**Stop**
8762	**I**	Heating circuit2 mixing valve closed	Stop, Start		**Stop**
8770	**U**	Ambient temperature 2	0... 50°C		**20°C**
		Ambient temperature value 2			**20°C**
8773	**U**	Start temperature 2	0... 140°C		**50°C**
		Start temperature ref. value 2			**50°C**
8820	**I**	DHW circulation pump	Stop, Start		**Stop**
8821	**I**	DHW electrical resistor K6	Stop, Start		**Stop**
8830	**U**	DHW temperature	0... 140°C		
		DHW temperature value			**50°C**
8840	**S**	Hours of operation of DHW pump	0... 2730 h		
8841	**S**	Counter for DHW pump starts	0... 2730 h		
8842	**S**	Hours of operation of DHW electrical system	0... 2730 h		
8843	**S**	Counter for DHW electrical system starts	0... 65535		
8900	**U**	Swimming pool temperature	0... 140°C		
		Swimming pool temperature value			**22°C**
8950	**I**	Common start temperature	0... 140°C		
		Common start temperature value			**0**
8957	**I**	Common start value, Refrigeration	0... 140°C		
9031	**I**	QX1 relay output	Stop, Start		**Stop**
9032	**I**	QX2 relay output	Stop, Start		**Stop**
9033	**I**	QX3 relay output	Stop, Start		**Stop**
9034	**I**	QX4 relay output	Stop, Start		**Stop**
9035	**I**	QX5 relay output	Stop, Start		**Stop**
9036	**I**	QX6 relay output	Stop, Start		**Stop**
9037	**I**	QX7 relay output	Stop, Start		**Stop**
9050	**I**	QX21 relay output module 1	Stop, Start		**Stop**
9051	**I**	QX22 relay output module 1	Stop, Start		**Stop**
9052	**I**	QX23 relay output module 1	Stop, Start		**Stop**
9053	**I**	QX21 relay output module 2	Stop, Start		**Stop**
9054	**I**	QX22 relay output module 2	Stop, Start		**Stop**
9055	**I**	QX23 relay output module 2	Stop, Start		**Stop**

4 Configuration of installation

☞ ***2nd circuit kit option***

The management of 2 heating circuits requires the installation of the 2nd circuit kit.

☞ ***Swimming pool kit option***

Refer to the instructions supplied with the swimming pool kit.

Configuration (parameter 5700)	*Type of installation*	*Pages*
Pre-settings 1 to 12	***Do not use with "alféa hybrid duo". Reserved for "alféa S" and "alféa duo" heat pumps***	-
Pre-setting 13	1 heating circuit.	page 54
Pre-setting 14	2 heating circuits.	page 55

☞ **For all other installation configurations, contact us.**

4.1 Configuration 13 or 14:

☞ **Parameter 5700**

Configuration 13: 1 heating circuit (see diagrams page 54).

Configuration 14: 2 heating circuits (see diagrams page 55).

The management of 2 heating circuits requires the installation of the 2nd circuit kit.

4.1.1 Hydraulic connections

☞ ***If there are 2 heating circuits***

- Install the parts of the 2nd circuit kit.
  Refer to the instructions supplied with the 2nd circuit kit.

4.1.2 Electrical connections

- **1** - Power supply to the outdoor unit.
  Refer to the paragraph "electrical connections on outdoor unit side".
- **2** - Inter-connection between the outdoor unit and the hydraulic module.
- **3** - Outdoor sensor.
- **4** - Ambient sensor and/or central ambient unit.
- **5** - Contract with the energy supplier
  Connect the "energy supplier" contact to the EX5 input.

☞ **If there are 2 heating circuits**

Refer to the instructions supplied with the 2nd circuit kit.

- **6** - heating circuit2 circulation pump.
- **7** - Mixing valve.
- **8**- Start sensor.
- **()** - RVS/AVS interconnection, AVS power supply.

☞ ***If there is under-floor heating***

Under-floor heating thermal safety device.

- **10** - The connection of the under-floor heating thermal safety device is at the charge of the person installing. thermal safety device must stop the heating circulation pump if the temperature is too high in the floor.

4.1.3 Regulation parameters

- Set the configuration: **13, or 14**, line **5700**.
- Set the DHW programme (line **1610** to **1661**).
- *1 heating circuit*
  Set the slope of the heating curve.
  line **720**.
- *2 heating circuits*
  Set the slope of the heating curve.
  line **720** (heating circuit **1**).
  line **1020** (heating circuit **2**).

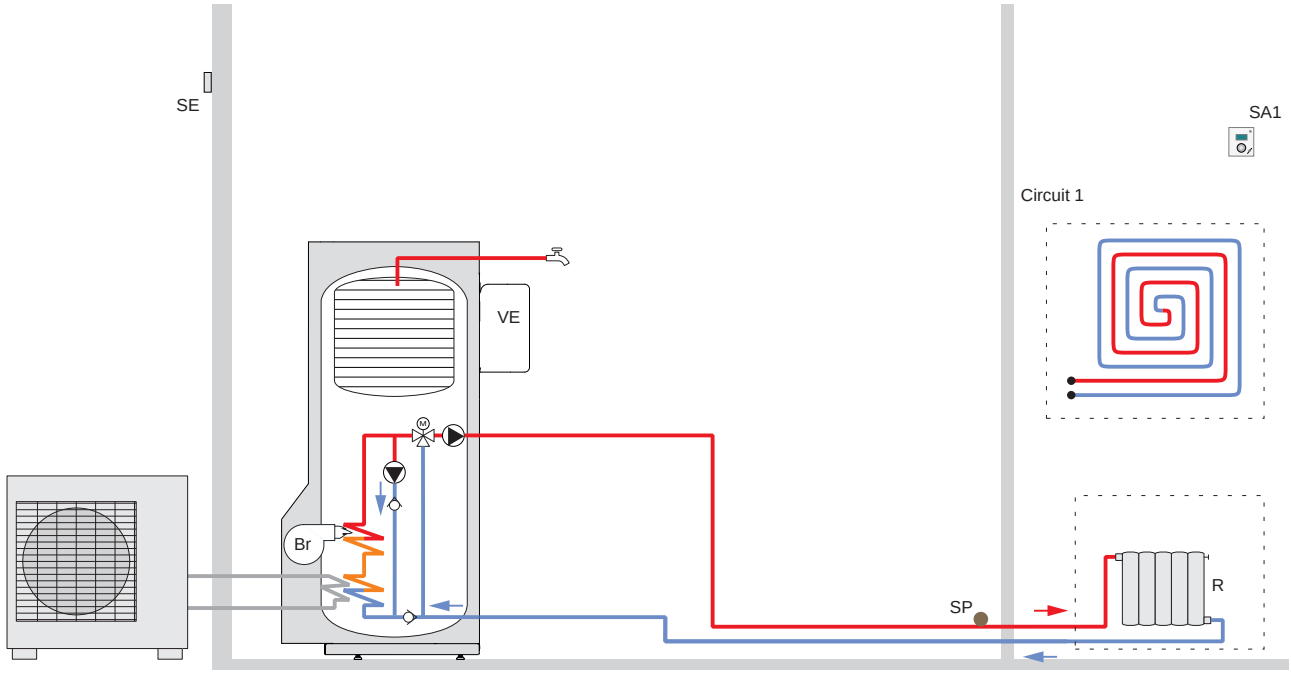
☞ ***If there is under-floor heating***

- *On circuit 1*
  Set the max. start value to 50°C
  (line **741**).
- *On circuit 2*
  Set the max. start value to 50°C
  (line **1041**).

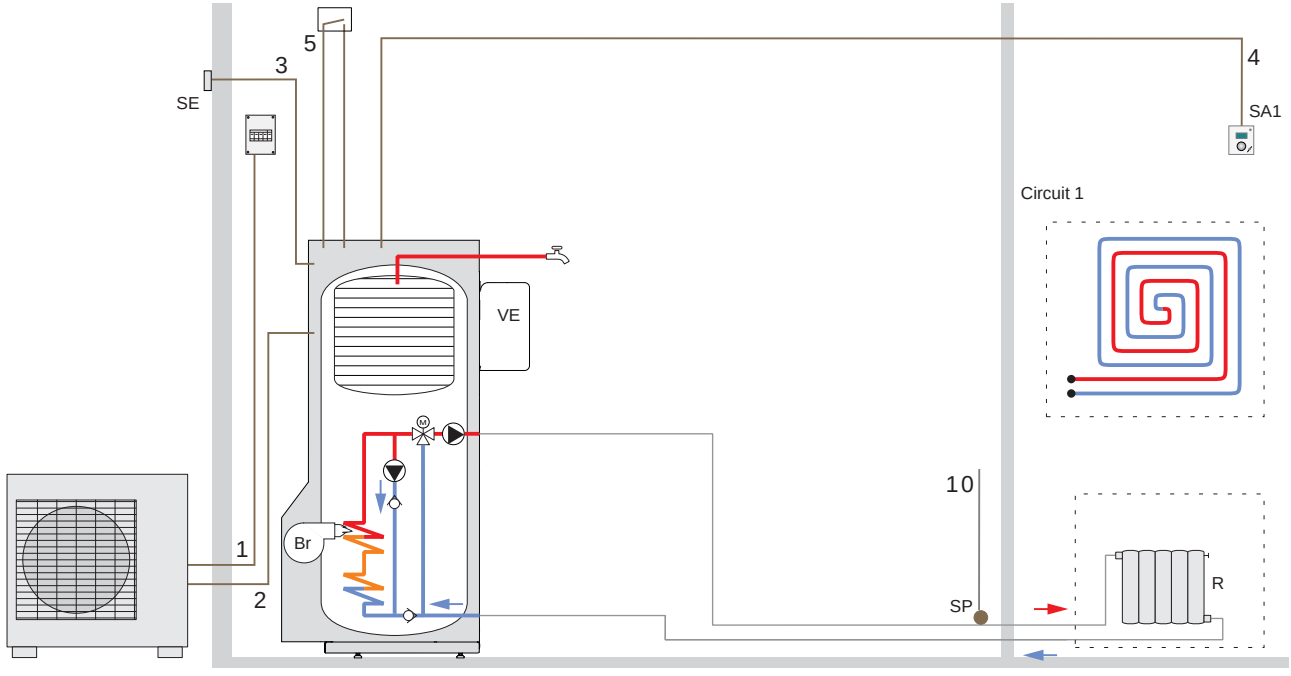
• Configuration 13:
1 heating circuit.

☞ **Refer to the detailed instructions page 53**

Hydraulic principle diagram



Overall view of the electrical connections



Legend

Br - Burner

R - Radiator fan coil unit

SA - Ambient sensor (optional)

SE - Outdoor sensor

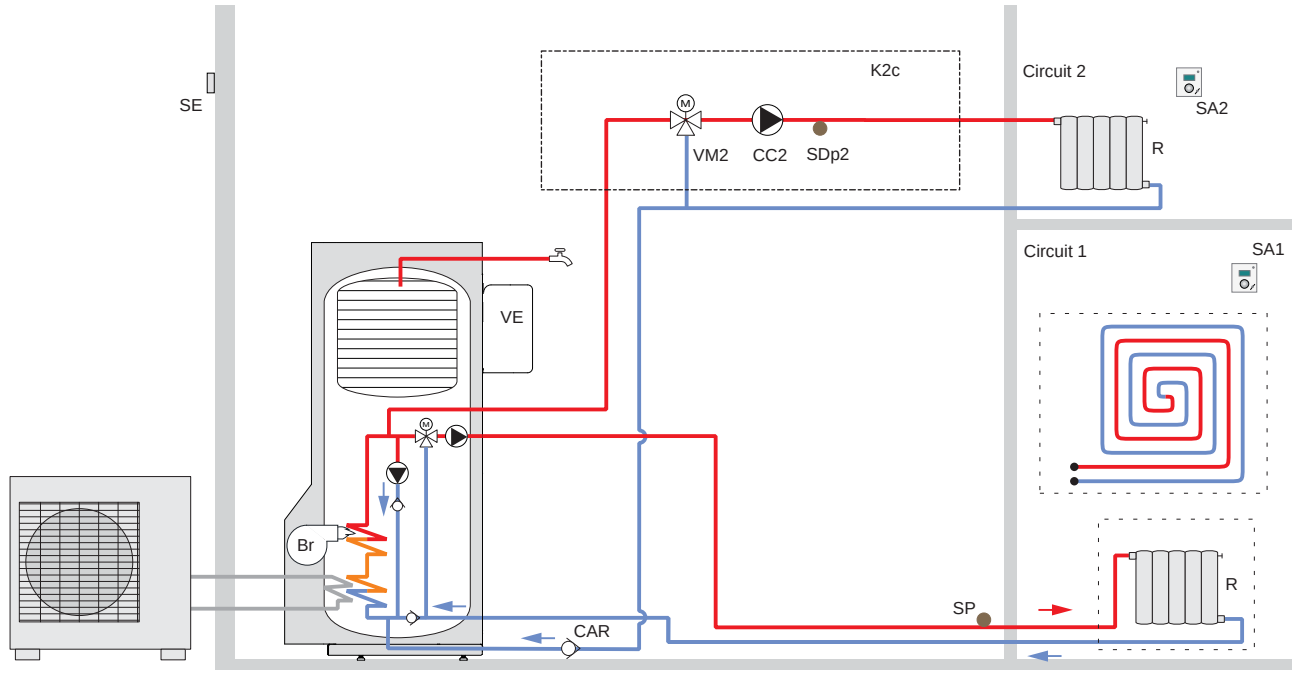
SP - Thermal safety device for under-floor heating

VE - Expansion tank

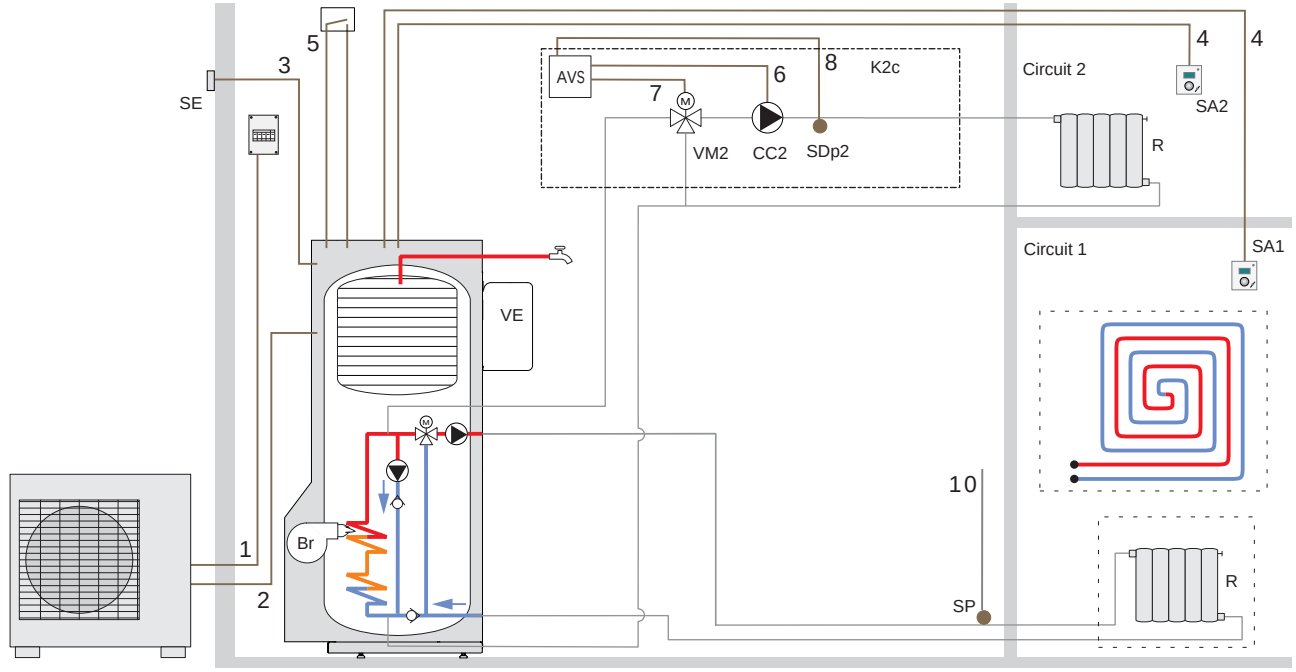
• Configuration 14:
2 heating circuits.

☞ **Refer to the detailed instructions page 53**

Hydraulic principle diagram

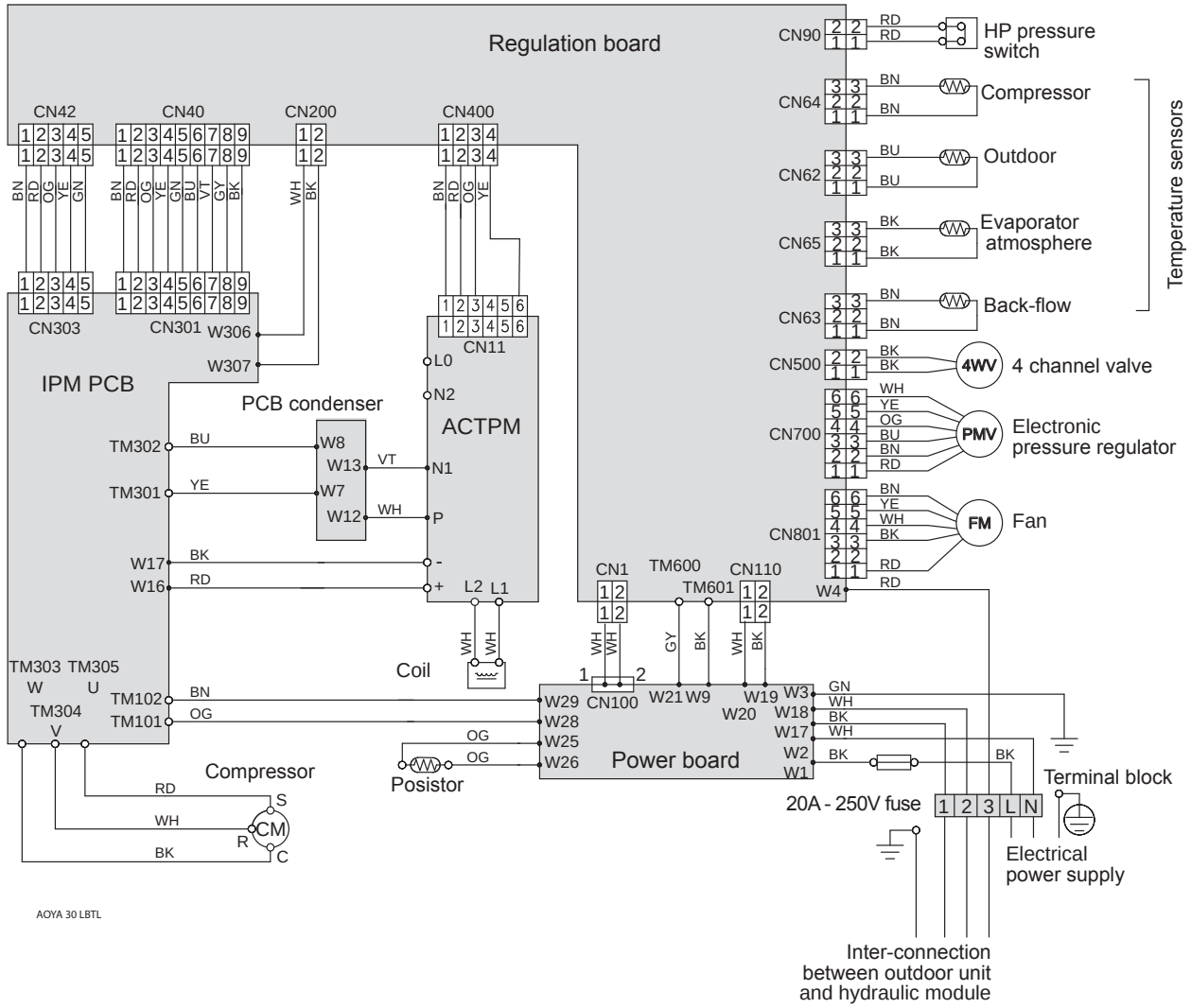


Overall view of the electrical connections



Legend	**K2c** - 2nd circuit kit	**SDp2** - Circuit 2 start sensor
AVS - 2nd circuit regulator		
CAR - Non-return valve	**R** - Radiators (or fan coil units)	**SP** - Under-floor heating safety device
heating circuit2 - Heating circuit 2 circulation pump	**SA1** - Circuit 1 ambient sensor (optional)	**VE** - Expansion tank
	SA2 - Circuit 2 ambient sensor (optional)	**VM2** - Circuit 2 mixing valve
Br - Burner	**SE** - Outdoor sensor	

5 Electrical wiring diagrams



Colour codes

BK	Black
BN	Brown
BU	Blue
GN	Green
GY	Grey
OG	Orange
RD	Red
VT	Violet (purple)
WH	White
YE	Yellow

figure 55 - Electrical wiring of outdoor unit (alféa hybrid duo 10 single phase model)

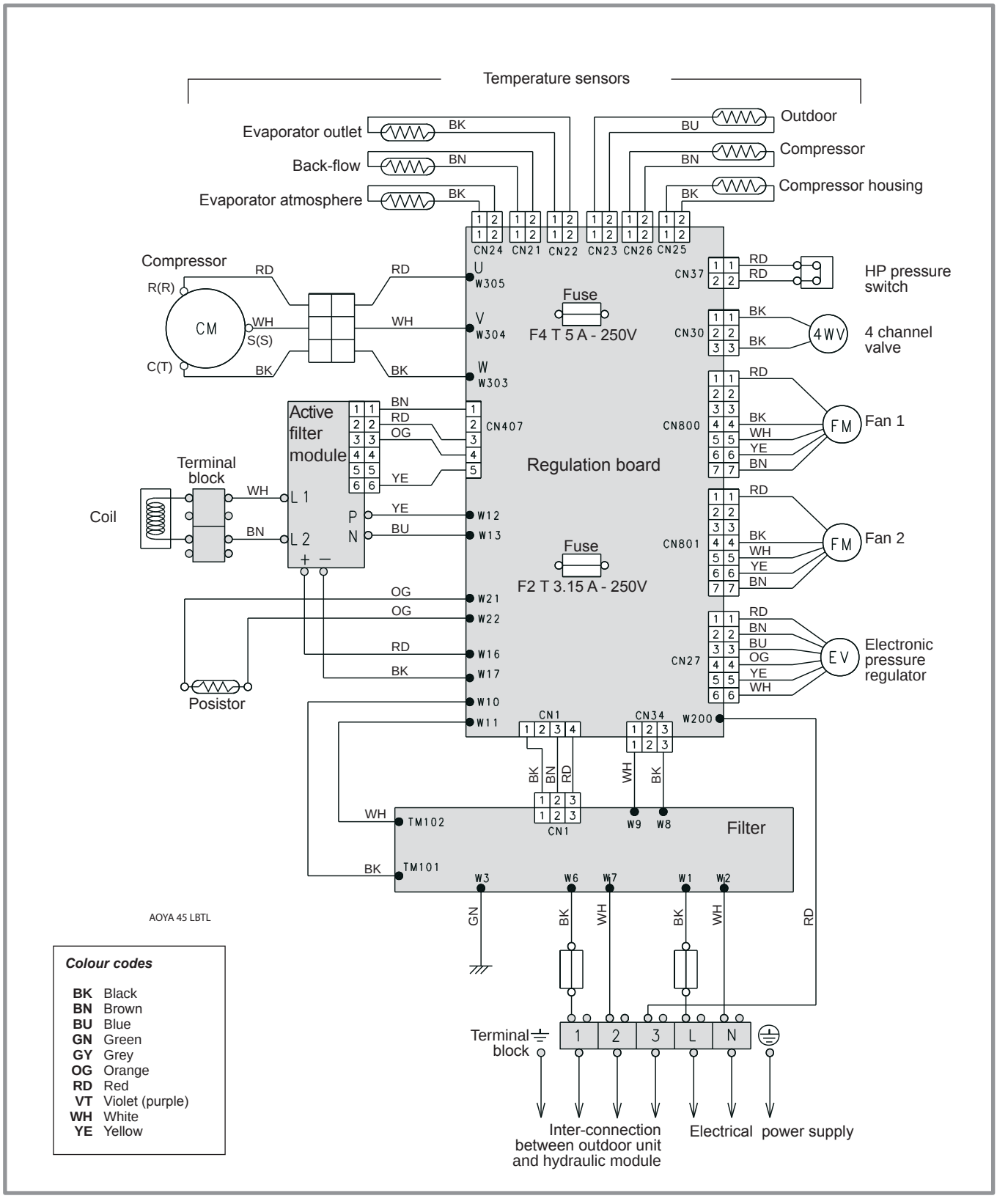


figure 56 - Electrical wiring of outdoor unit (alféa hybrid duo 13 single phase model)

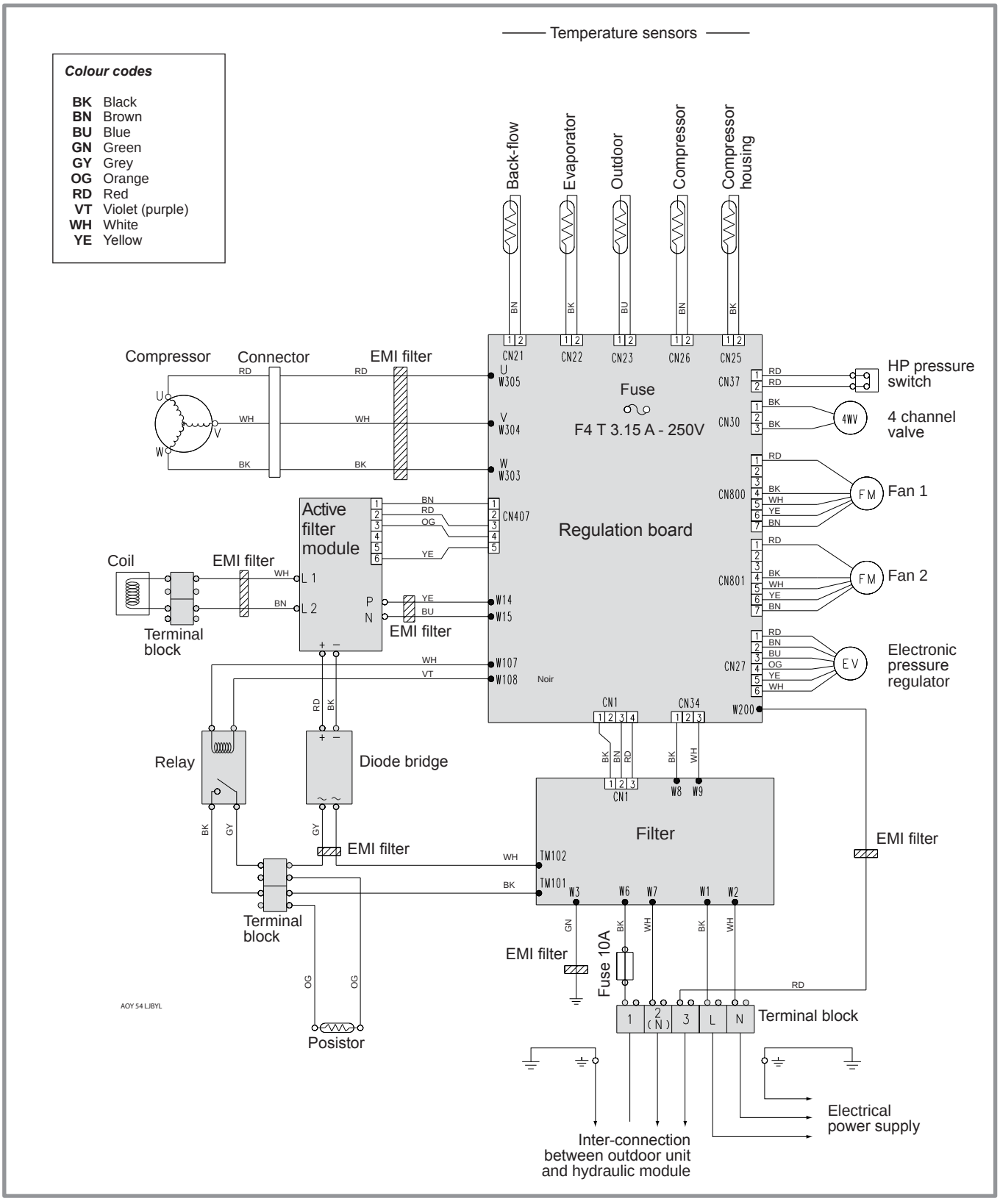


figure 57 - Electrical wiring of outdoor unit (alféa hybrid duo 16 single phase model)

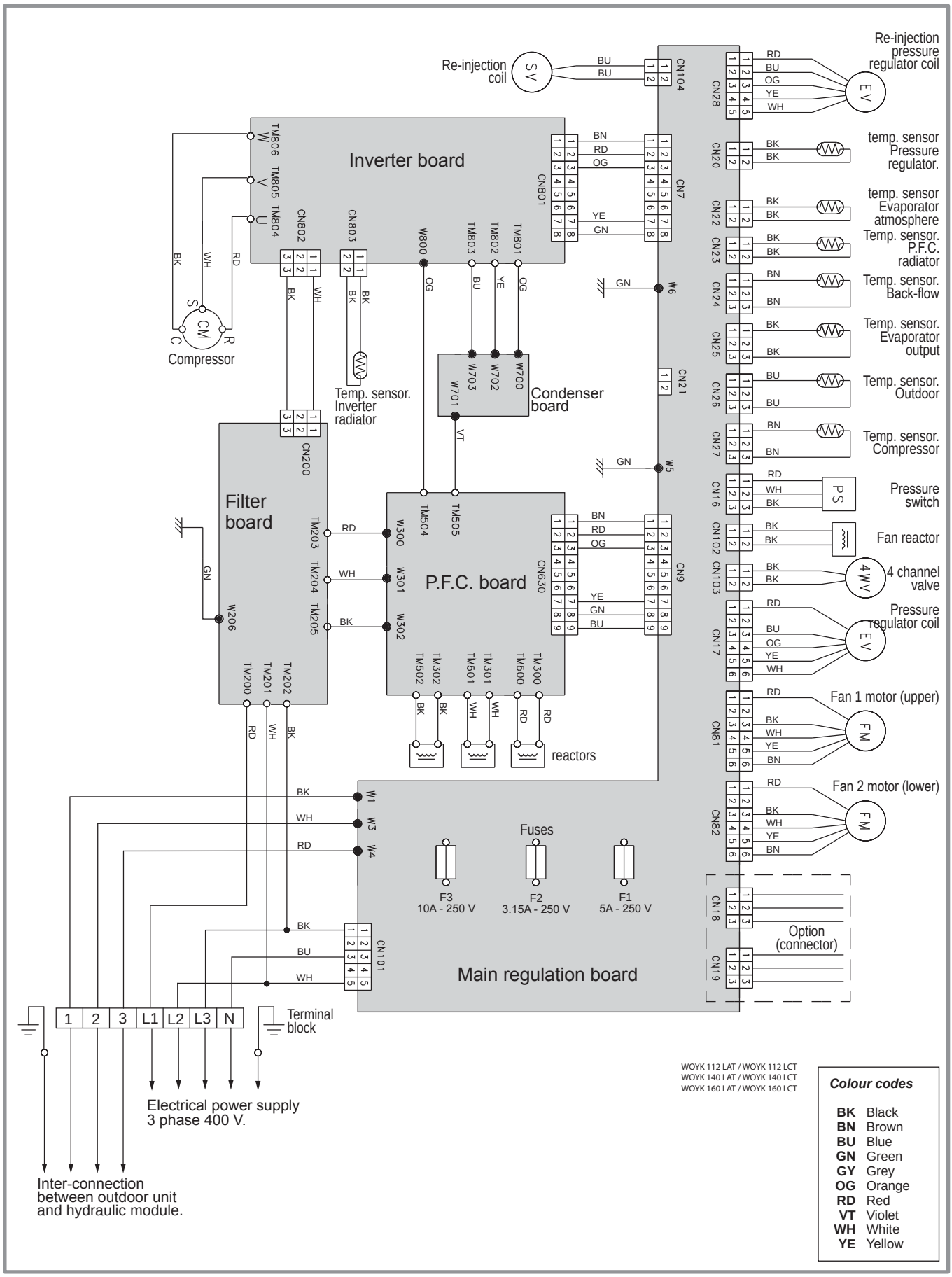


figure 58 - Electrical wiring of outdoor unit (models alféa hybrid duo 11, 14 16 three phase)

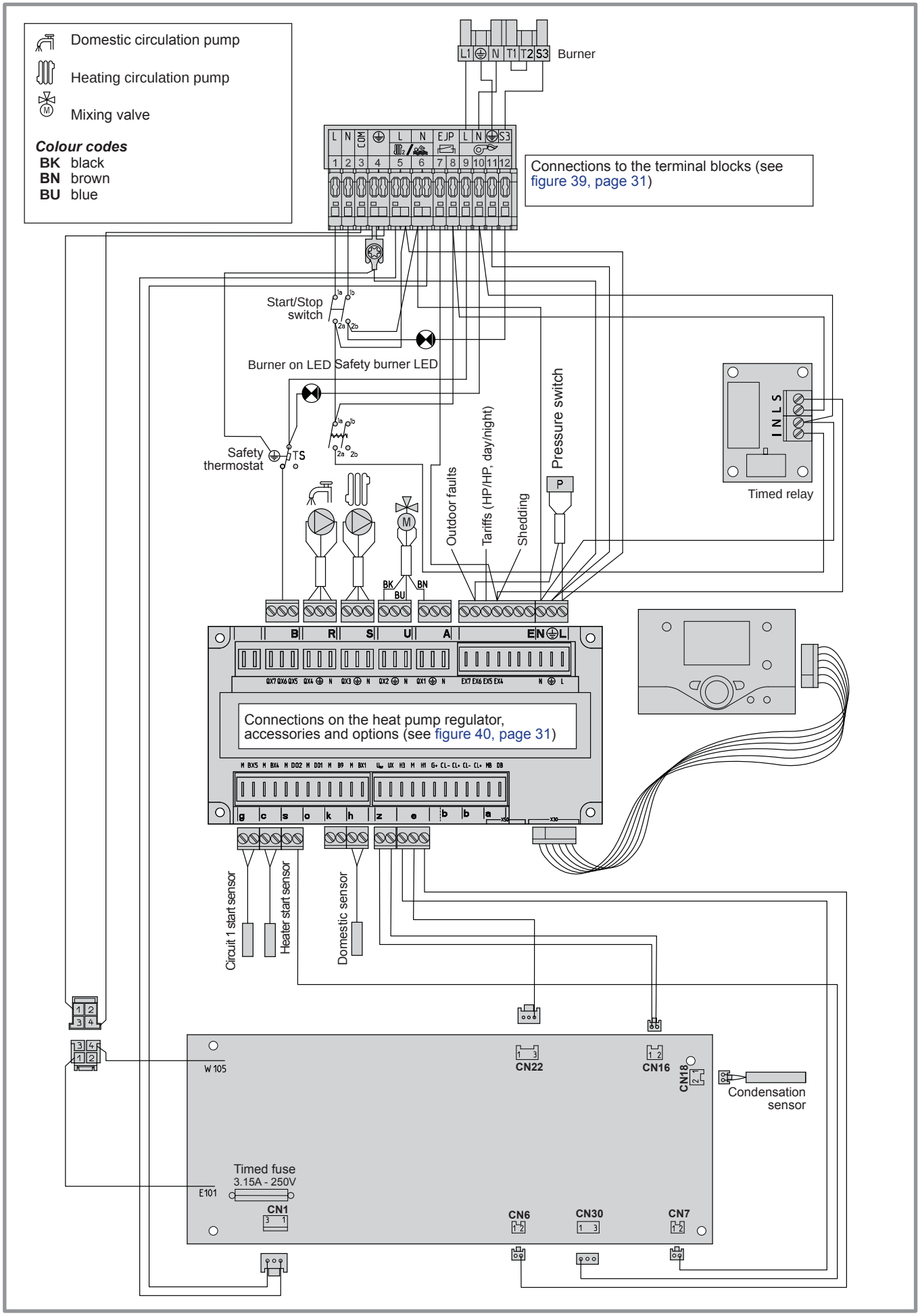


figure 59 - Electrical wiring of hydraulic module (excluding connections by person installing)

6 Servicing and troubleshooting

6.1 Display information

The Info button calls up various information.

Depending on the appliance type, the configuration and the state of operation, certain information lines may not be available.

- Error messages possible in the error code list (see table, page 63).
- Maintenance messages possible in the maintenance code list.
- Special operation messages.
- Miscellaneous information (see below).

Designation	*Line*
Current drying value.	-
Current drying day	-
Drying days completed	-
State of heat pump	8006
State of additional generator	8022
DHW state.	8003
State of swimming pool.	8011
State of heating circuit 1.	8000
State of heating circuit 2.	8001
State of cooling circuit 1.	8004
Outdoor temperature.	8700
Ambient temperature 1.	8740
Ambient value 1	
Start temperature 1	8743
Start value 1.	
Ambient temperature 2.	8770
Ambient value 2	
Start temperature 2	8773
Start value 2.	
DHW temperature.	8830
Heat pump return temperature.	8410
Heat pump ref. value (start)	
Heat pump start temperature.	8412
Heat pump ref. value (start)	
Swimming pool temperature	8900
Swimming pool (temperature) value	

6.2 Servicing of the installation

Before carrying out any work, ensure that the general electrical power supply and the fuel supply valve are switched off.

6.2.1 Servicing of the heat exchanger

The boiler must be serviced regularly to maintain high its output.

Depending on the operating conditions, the servicing operation is to be carried out once or twice a year.

- Switch off the electrical power supply to the appliance.
- Disconnect the air inlet duct.
- Open the chamber door. Use the ball-end Allen key Ø 6.
- Remove the turbulators and clean them.
- Clean the exchanger with a scraper and a Nylon swab Ø 50 mm.
- Remove the resides after cleaning via the sweeping panel.
- Do not use abrasive materials or metal brushes on the ceramic door protection.
- Refit all of the parts correctly.
- Close the sweeping panel and the chamber door ensuring there are no leaks.

☞ **Tighten the door locking screw moderately.**

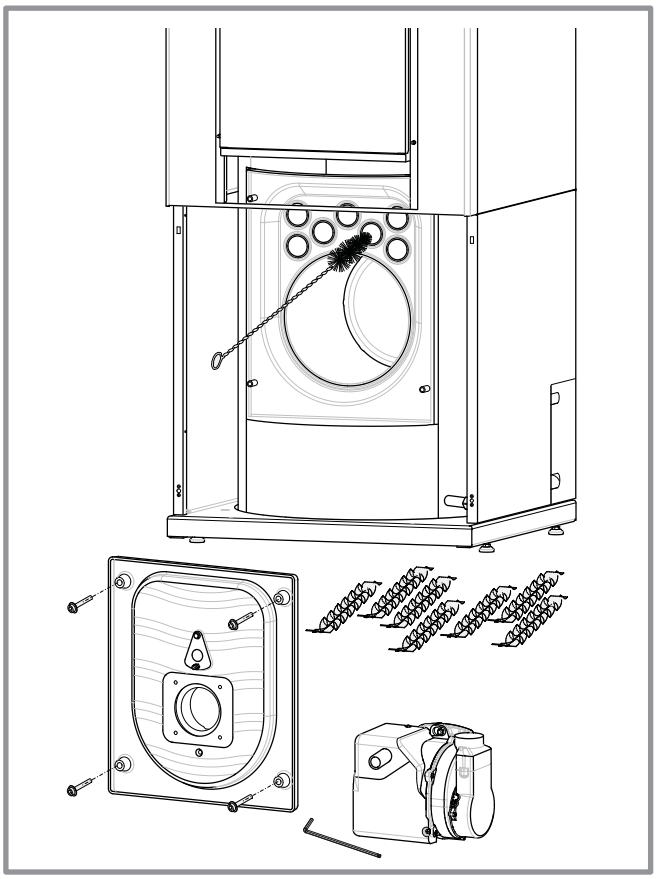


figure 60 - Access to the exchanger flues

6.2.2 Servicing the burner

The burner must be serviced regularly (cell, jet, combustion head, electrode, pump filter) by a specialist once or twice a year depending on the conditions of use.

These servicing operations are detailed in the technical instructions of the burner.

Before carrying out any work, ensure that the general electrical power supply and the fuel supply valve are switched off.

After refitting, an operating check must be carried out on the burner to ensure that the settings have not been modified and that they correspond to the desired power level of the boiler.

- The "sweeping" button (figure 47) authorises the operation of the burner for an hour.
- Create a heating request in order to start the burner.

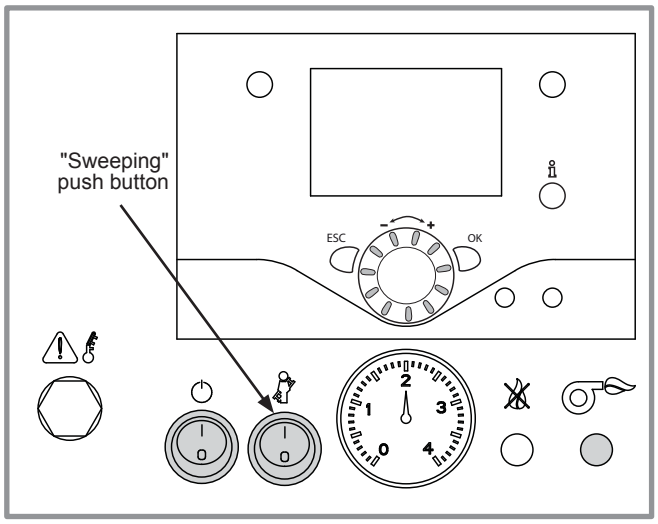


figure 61 - Sweeping function

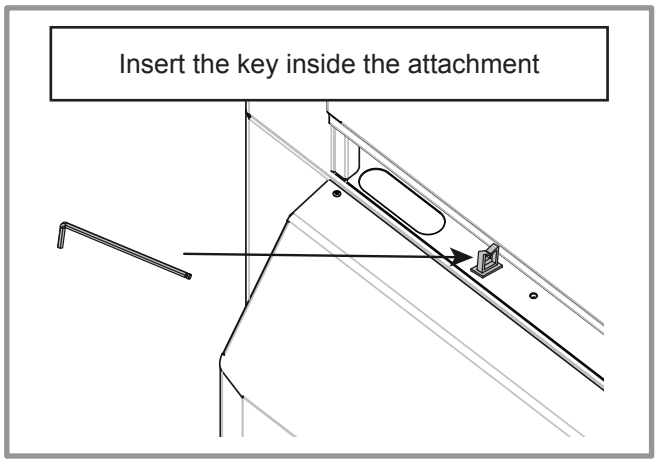


figure 62 - Storing the Allen key

6.2.3 Servicing the tank

The tank must be serviced once a year.

- Reduce the pressure of the primary circuit (P < 0.5 bar).
- Empty the tank by actuating the safety unit valve.
- Remove the inspection panel.
- Remove any scale deposits that may have accumulated in the tank.
- Carefully remove any scale deposits on the pocket. Do not use any metal objects or chemical or abrasive products.
- Change the seal on the inspection panel every time it is removed.
- Refit the inspection panel and tighten the nuts alternately.

☞ **Do not forget to refit the domestic sensor into the pocket.**

6.2.4 Servicing the chimney

The chimney must be checked and cleaned and by a specialist at least once a year.

6.2.5 Servicing the safety appliances

Every year, check that the expansion system is operating correctly. Check the pressure of the expansion tank and the calibration of the safety valve.

Check the safety unit on the domestic cold water inlet.

6.3 Faults

Depending on whether the fault is on the outdoor unit or the hydraulic module, the fault may be advised by the digital display or the LED on the interface boards.

6.3.1 Display on the hydraulic module

The faults or breakdowns of the hydraulic module are advised on the display unit of the user interface.

The display shows the symbol .

Press the button to obtain the details of the origin of the fault.

When the error is resolved, the faults are reset automatically.

Hydraulic module: Visible faults on the digital display.

Error number	*Error text*	*Position of the error*	*Operation of heat pump in spite of the error*
-	No connection.	The polarity of the ambient sensor has not been respected.	No
10	Outdoor sensor.	B9	Yes
33	Heat pump start sensor temperature error.	B21	Yes
44	Heat pump return sensor temperature error.	B71	Yes
50	DHW temperature sensor.	B3	Yes
60	Ambient sensor 1.		Yes
65	Ambient sensor 2.		Yes
105	Maintenance message.		Yes
121	heating circuit1 start temperature not reached.		Yes
122	heating circuit2 start temperature not reached.		Yes
127	Anti-legionella temperature not reached.		Yes
369	Hydraulic pressure fault.		No
370	Error on outdoor unit (during a start phase, see § "Commissioning").	See below.	No

Hydraulic module: Flashing LED visible on the interface board.

LED display		*Error text*
LED 2 (green)	*LED 1 (red)*	
1 Flash	1 Flash	Error on communication between the hydraulic module and the outdoor unit.
4 Flashes	1 Flash	Error on connection between the hydraulic module and the outdoor unit.
4 Flashes	2 Flashes	Error on hydraulic module exchanger temperature sensor.
6 Flashes	3 Flashes	Error on inverter.
6 Flashes	4 Flashes	Error on active filter.P.F.C. error
7 Flashes	1 Flash	Discharge thermistor error
7 Flashes	2 Flashes	Error on compressor temperature sensor.
7 Flashes	3 Flashes	Error on exchanger temperature sensor (outlet). Error on exchanger temperature sensor (centre).
7 Flashes	4 Flashes	Error on outdoor temperature sensor.
7 Flashes	7 Flashes	Error on radiator temperature sensor (inverter). Error on radiator temperature sensor (P.F.C.).
7 Flashes	8 Flashes	Error on pressure regulator temperature sensor.
8 Flashes	4 Flashes	Error on compressor current.
8 Flashes	6 Flashes	Error on pressure switch sensor. Error on pressure sensor.
9 Flashes	4 Flashes	Error on current sensor.
9 Flashes	5 Flashes	Error in position of the compressor rotor. Error on compressor start up.
9 Flashes	7 Flashes	Error on outdoor unit fan.
10 Flashes	1 Flash	Discharge temperature protection.
10 Flashes	3 Flashes	Compressor temperature protection.
10 Flashes	5 Flashes	Abnormal low pressure.
Continuous flashing (1 sec lit/1 sec extinguished).		Pump down operation.
Permanently lit	Stop	Defrosting.

6.3.2 Faults displayed on the outdoor unit single phase model

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

Outdoor unit, AOYA30LBTL model (alféa hybrid duo 10 single phase model).

LED display	*Part in error*
0.1 s lit and 0.1 s extinguished	temperature sensor faulty (see hydraulic module).
0.5 s lit and 0.5 s extinguished	IPM board faulty.
2 s lit and 2 s extinguished	Electrical current circuit breaker error.
5 s lit and 5 s extinguished	Fan motor faulty.
0.1 s lit and 2 s extinguished	Position of the compressor rotor not detected.
5 s lit and 0.1 s extinguished	ACTPM board faulty.
Permanently lit	Abnormal back-flow temperature.

Outdoor unit, models AOYA45LATL and AOYA45LBTL (alféa hybrid duo 13 single phase model). outdoor unit, model AOYA54LJBYL (alféa hybrid duo 16 single phase model).

LED display	*Part in error*
1 Flash	"Hydraulic module - outdoor unit" transmission error.
2 Flashes	Faulty back-flow temperature sensor.
3 Flashes	Faulty evaporator temperature sensor.
4 Flashes	Faulty outdoor temperature sensor.
5 Flashes (model alféa hybrid duo 13)	Faulty evaporator medium temperature sensor.
6 Flashes (model alféa hybrid duo 13)	Abnormal back-flow temperature.
7 Flashes	Faulty compressor temperature sensor.
8 Flashes	Faulty radiator temperature sensor.
9 Flashes	Faulty high pressure switch.
10 Flashes (model alféa hybrid duo 13)	Abnormal compressor temperature.
12 Flashes	IPM board faulty.
13 Flashes	Position of the compressor rotor not detected.
14 Flashes	The compressor does not work.
15 Flashes	Upper fan motor faulty.
16 Flashes	Lower fan motor faulty.
5 s lit and 1 s extinguished	Safety mode.
1 s lit and 1 s extinguished (alféa hybrid duo 13 model)	Drained.
Permanently lit	No errors.

6.3.3 Faults displayed on the outdoor unit three phase model

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

When an error occurs:

The "**ERROR**" diode (2) flashes.

Press the "**ENTER**" (SW4) button once.

The"**ERROR**" (2) LED flashes several times depending on the type of error (see table below).

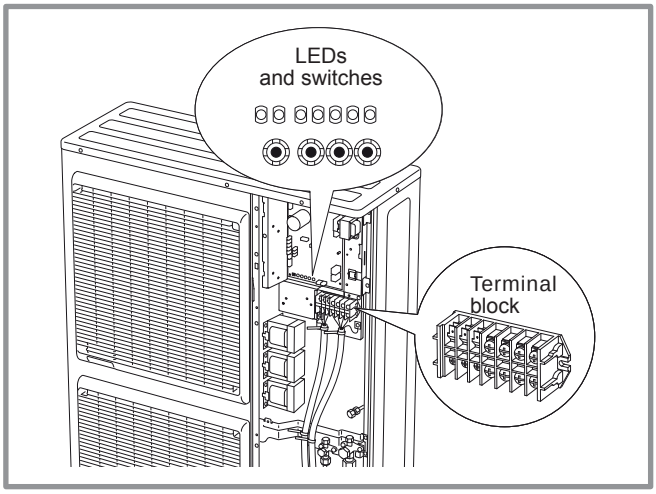


figure 63 - Position of the switches and LEDs of the outdoor unit.

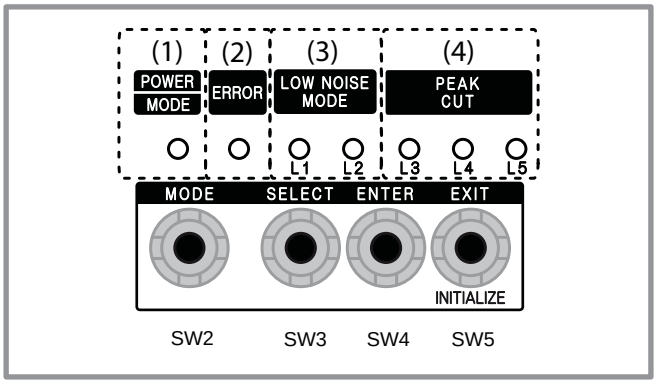


figure 64 - Outdoor unit display

Outdoor unit, model WOYK112LAT (alféa hybrid duo 11 three phase model).
Outdoor unit, model WOYK140LAT (alféa hybrid duo 14 three phase model).
Outdoor unit, model WOYK160LAT (alféa hybrid duo 16 three phase model).

LED display	*Error text*
1 Flash	Error on series communication return.
2 Flashes	Error on discharge thermistor
3 Flashes	Error on pressure switch sensor.
4 Flashes	Error on exchanger output temperature sensor.
5 Flashes	Error on intermediate exchanger temperature sensor.
6 Flashes	Error on pressure regulator temperature sensor.
7 Flashes	Error on outdoor temperature sensor.
8 Flashes	Error on compressor temperature sensor.
9 Flashes	Error on inverting radiator temperature sensor.
10 Flashes	Error on P.F.C. radiator temperature sensor
11 Flashes	Discharge thermistor protection (permanent stop).
12 Flashes	Compressor temperature protection (permanent stop).
13 Flashes	Current sensor error (permanent stop).
14 Flashes	Detection error for the position of the compressor rotor (permanent stop).
15 Flashes	Compressor start error (permanent stop).
16 Flashes	Error on fan 1 motor (permanent stop).
17 Flashes	Error on fan 2 motor (permanent stop).
18 Flashes	Error on inverter.
19 Flashes	Error on P.F.C.
20 Flashes	Abnormal low pressure.
21 Flashes	Connection error with the hydraulic module.
22 Flashes	Hydraulic module anomaly.

7 Values to be given to the user

- Advise the user on the choice of the most suitable electricity contract to take the most advantage offered by the hybrid heat pump: thermodynamics for the "Off peak rates tariff" days and the boiler for the "peak hours tariff" days.

- Explain to the user the operation of the installation, especially the ambient sensor functions and the programmes that are accessible via the user interface.

- Emphasize that under-floor heating has considerable inertia and that consequently the settings need to be progressive.

- Also explain to the user how to check the heating circuit is filled.

CE

Complies with:
- Low voltage directive 2006/95/EC, under standard in 60335-1.
- Electromagnetic compatibility Directive 2004/108/EC,
- Directive 2006/42/EC Machinery,
- Directive for pressurised equipment 97/23/EC.

This appliance also conforms to:
- Regulation 842/2006 of the European parliament on certain fluorinated greenhouse gases.
- The standards relating to the product and the testing methods used: Air-conditioners, refrigeration unit s and heat pumps with compressor driven by electric motor for heating and refrigeration in 14511-1, 14511-2, 14511-3, and 14511-4.
- To standard XP ENV 12102: Air-conditioners, heat pumps and dehumidifiers with compressor driven by electric motor. Measurement of airborne noise. Determination of acoustic power level.

This appliance is marked with this symbol. This means that electrical and electronic products shall not be mixed with general household waste.
European Community countries(*), Norway, Iceland Liechtenstein should have a dedicated collection system for these products.
Do not try to dismantle the system yourself as this could have harmful effects on your health and on the environment.
The dismantling and treatment of refrigerant, oil and other parts must be done by a qualified installer in accordance with relevant local and national regulations.
This appliance must be treated at a specialized treatment facility for re-use, recycling and other forms of recovery and shall not be disposed of in the municipal waste stream.
Please contact the installer or local authority for more information.

* subject to the national law of each member state

Date of commissionning:

Contact details of your heating engineer or After Sales service.

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